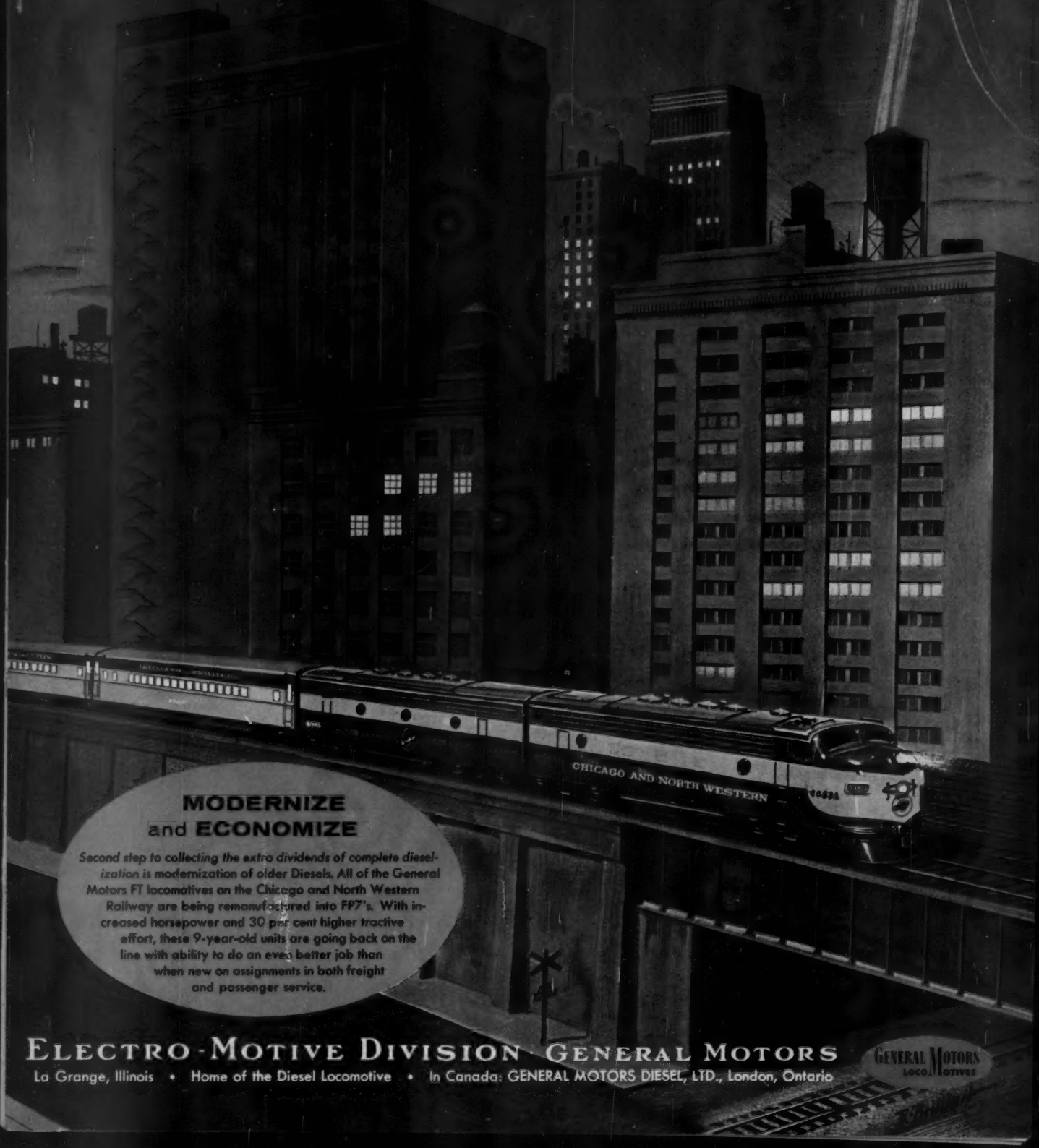
JUNE 20, 1953 Latest on Lightweight Trains . . . p. 64

RAILWAY AGE

One of Five Simmons-Boardman Railway Publications



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Second step to collecting the extra dividends of complete dieselization is modernization of older Diesels. All of the General Motors FT locomotives on the Chicago and North Western Railway are being remanufactured into FP7's. With increased horsepower and 30 per cent higher tractive effort, these 9-year-old units are going back on the line with ability to do an even better job than when new on assignments in both freight and passenger service.

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This simple device on your diesel or steam locomotive wheels . . .

. . . loaded with Nalco "Moly" Stick dry lubricant . . .

. . . gives you

- Better flange lubrication
- Lowered lubricating costs
- Longer wheel life
- Less lubricator maintenance
- No traction losses
- No track fouling

SIMPLICITY, plus low installation and upkeep costs for *really effective dry flange lubrication* are yours with Nalco "Moly" Stick Lubricators. This new concept in flange lubrication utilizes a molybdenum disulfide type lubricant which has high film strength under pressure and does not pick up dirt or other abrasives. Tests in service show that "Moly" Sticks provide better lubrication and far outwear any other type of stick lubricant.

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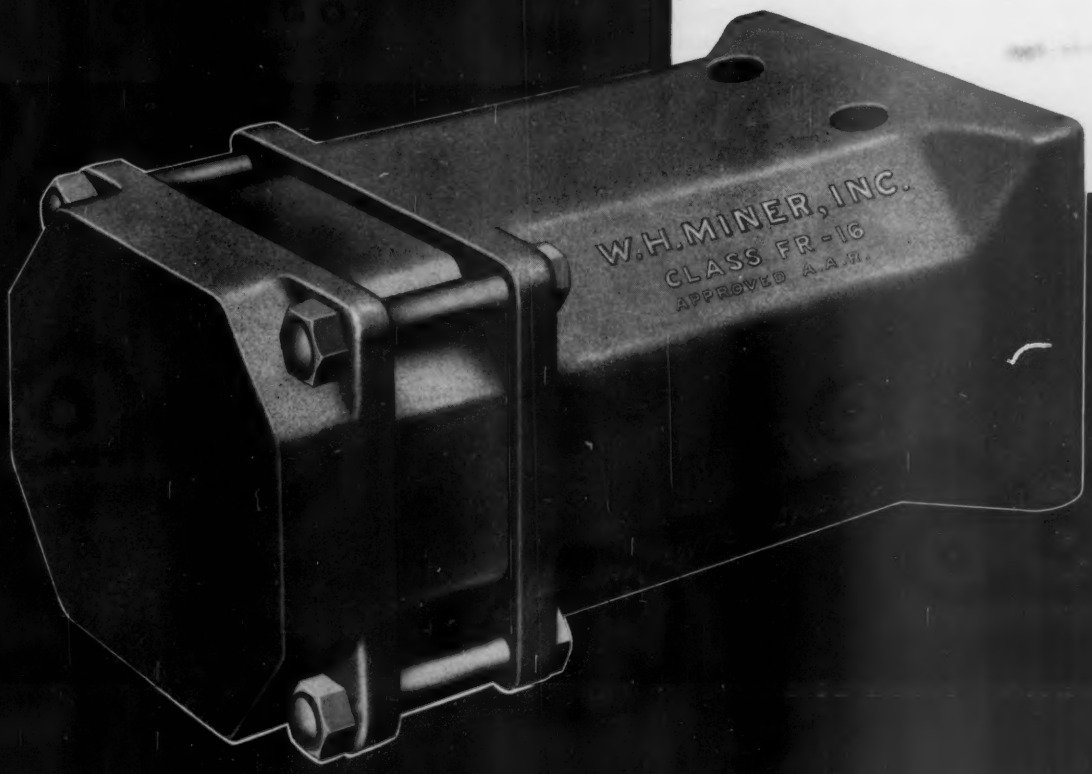
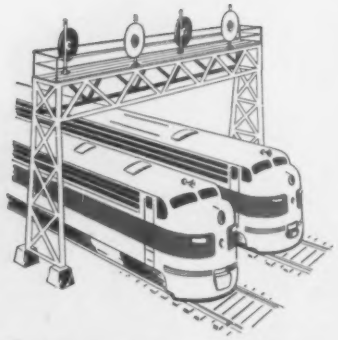


Why not C.T.C. *all the way?*



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The benefits of centralized traffic control are well established. You can increase track capacity, cut train time by hours, eliminate unnecessary tracks and effect large savings in operating expense.

C.T.C. not only pays for itself quickly, but goes on to earn handsome profits. It is one of the best investments a railroad can make, paying returns of 15% to 25%—and in some cases even more.

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June 20, 1955 **Vol. 138, No. 25**

Week at a Glance

General Motors' lightweight train — subject of long-continued rumor, speculation and conjecture—is now scheduled to be put on public display in Chicago on the last day of August. 7

"Car orders should increase soon," the AAR's W. E. Callahan told the Southeast Shippers Board last week. The pickup appears to have begun; a lot of the many orders reported this week are individually small but they add up to a pretty substantial total. 8

Do some carriers fear competition? If so, says Commerce Secretary Weeks, they have the burden of showing why they should be "protected." 10

FORUM: Can you explain the "Cabinet Report" simply? It's up to those who can—and for the railroads' welfare they ought to be numerous—to tell the story simply, vividly, dramatically. 63

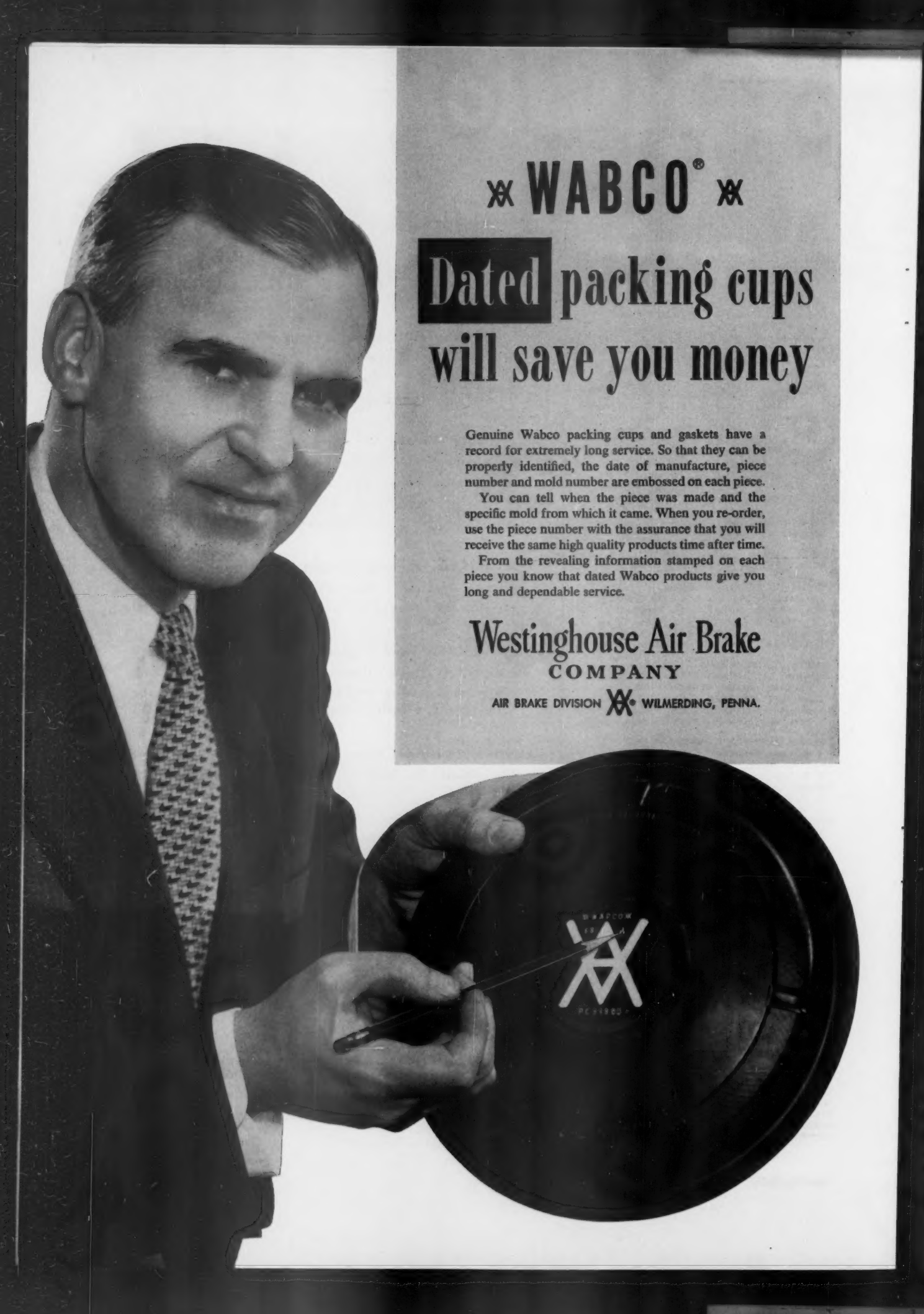
Lightweight trains—where they should be used and how they should be built — are subjects outlined by H. Bleibtreu. 64

Solid alloy engine bearings made of aluminum alloys, after eight years of use, have shown their ability to operate under heavy loads. 68

A yard for just one commodity—phosphate—has been put in service by the ACL. 70

City traffic is being strangled. The solution is coordinating transportation, says E. E. Kearns, of the General Electric Company. 72

ACL radio includes innovations — including its use on passenger trains — which make it, the Coast Line says, "the most advanced and complete radio system on any railroad." 76



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Dated packing cups will save you money

Genuine Wabco packing cups and gaskets have a record for extremely long service. So that they can be properly identified, the date of manufacture, piece number and mold number are embossed on each piece.

You can tell when the piece was made and the specific mold from which it came. When you re-order, use the piece number with the assurance that you will receive the same high quality products time after time.

From the revealing information stamped on each piece you know that dated Wabco products give you long and dependable service.

Westinghouse Air Brake COMPANY

AIR BRAKE DIVISION WILMERDING, PENNA.

Current Statistics

Operating revenues, four months	
1955	$3,094,856,784
1954	3,028,533,293
Operating expenses, four months	
1955	$2,365,972,521
1954	2,446,063,802
Taxes, four months	
1955	$ 327,344,975
1954	296,160,835
Net railway operating income, four months	
1955	$ 319,554,764
1954	204,981,565
Net income, estimated, four months	
1955	$ 243,000,000
1954	132,000,000
Average price railroad stocks	
June 14, 1955	98.91
June 15, 1954	66.37
Carloadings, revenue freight	
Twenty-two weeks, 1955	14,930,375
Twenty-two weeks, 1954	13,765,287
Average daily freight car surplus	
Wk. ended June 11, 1955	10,950
Wk. ended June 12, 1954	85,485
Average daily freight car shortage	
Wk. ended June 11, 1955	9,925
Wk. ended June 12, 1954	374
Freight cars on order	
May 1, 1955	17,930
May 1, 1954	17,817
Freight cars delivered	
Four months, 1955	10,013
Four months, 1954	17,779
Average number railroad employees	
Mid-April 1955	1,009,159
Mid-April 1954	1,052,350

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX, THE ENGINEERING INDEX SERVICE AND THE PUBLIC AFFAIRS INFORMATION SERVICE. RAILWAY AGE, ESTABLISHED IN 1856, INCORPORATES THE RAILWAY REVIEW THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE. NAME REGISTERED IN U. S PATENT OFFICE AND TRADE MARK OFFICE IN CANADA.

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Week at a Glance CONTINUED

"No more dead freight" — that sums up the new thinking of railroad superintendents on an old problem. 84

BRIEFS

An infrared-ray hot-box detector is expected to be available soon. If mounted along a track, it will set the next signal to stop a train in which a journal is running dangerously hot, or it will automatically notify the next regular stop if a journal is warm enough to need checking but still safe.

This year's gross capital expenditures of Class I line-haul railroads are now expected to be about $754 million. The ICC's Bureau of Transport Economics and Statistics has compiled this total from the latest estimates submitted by 123 roads which had made earlier reports predicting outlays of only $704 million.

An increase from $1 million to $3 million in the minimum annual-revenue requirement for designation as a Class I railroad is being proposed by the ICC. The change, which will knock about 17 roads out of the Class I group, has been announced for January 1, 1956, but the commission has invited interested parties to submit views. The proposal contemplates two classes of roads instead of the present three. Class II roads would be all those with annual gross of less than $3 million.

What's "diverted" where? Truckers, auto makers, the petroleum industry, the American Automobile Association, and farm organizations, says "Fortune's" May issue, "like to blame the highway mess on 'diversion' of some $200 million to $300 million a year of state gas taxes and auto license fees away from road use. They gloss over the fact that four or five times as much money is 'diverted' *to* road use from general revenues and property taxes."

$100 a minute, or $144,343 a day! That's the way the Southern Pacific figures its 1954 tax money flowed into public treasuries.

Here's why you get

LOWEST TON-MILE COST

with solid-bearing freight cars

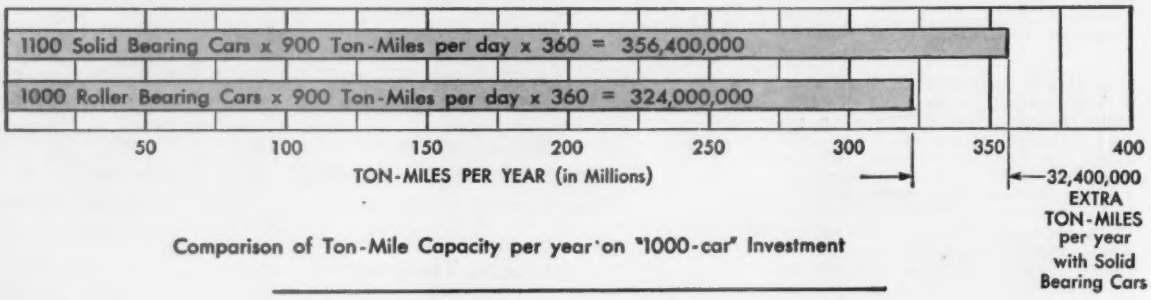
Projection of ton-mile costs as related to initial investment shows big economic advantage for solid bearings — even without any allowance for roller bearing maintenance or operating costs.

You can buy up to 10% more hauling capacity per dollar when you specify solid bearing cars. That means up to 10% more gross ton-miles of revenue, *and the lowest net ton-mile costs for operation!*

To illustrate: For the price of 1,000 roller bearing cars you can buy 1100 solid bearing cars. Make due allowance for all solid bearing operating costs on 1100 cars (you don't even have to consider the roller bearing failure, maintenance and operating costs) and you earn at least $250,000.00 per year more on your solid bearing car investment.

But suppose you don't need the 100 extra cars? Then you reduce your initial investment by $600,000.00 and get the same increased return per dollar represented by the $250,000.00 above — the same overall reduction in costs per ton-mile of operation.

Look at it another way: All your true maintenance costs for solid bearing assemblies will come to less than the interest and depreciation on the cost of rollers. That's positive assurance your overall ton-mile costs are lowest with low-cost solid bearings.*


1100 Solid Bearing Cars x 900 Ton-Miles per day x 360 = 356,400,000
1000 Roller Bearing Cars x 900 Ton-Miles per day x 360 = 324,000,000
50
100
150
200
250
300
350
400
TON-MILES PER YEAR (in Millions)
32,400,000 EXTRA TON-MILES per year with Solid Bearing Cars

Comparison of Ton-Mile Capacity per year on "1000-car" Investment

Still lower costs per ton-mile available

Real savings in ton-mile operating costs can be made with R-S Journal Stops and Satco lining metal. Journal Stops improve bearing lubrication, add to bearing life, and eliminate waste grabs. If all cars in a consist were journal-stop-equipped *the train could move to destination without attention to journal boxes.* Oiling could be on a periodic basis.

And bearings run cooler with Satco lining. You get lower operating temperatures, higher oil viscosity and a thicker film of oil. Write us for complete information on Journal Stops and Satco. Magnus Metal Corporation, 111 Broadway, New York 6; or 80 East Jackson Blvd., Chicago 4.

MAGNUS

Solid Bearings

* *Comparative economic studies available on request.*

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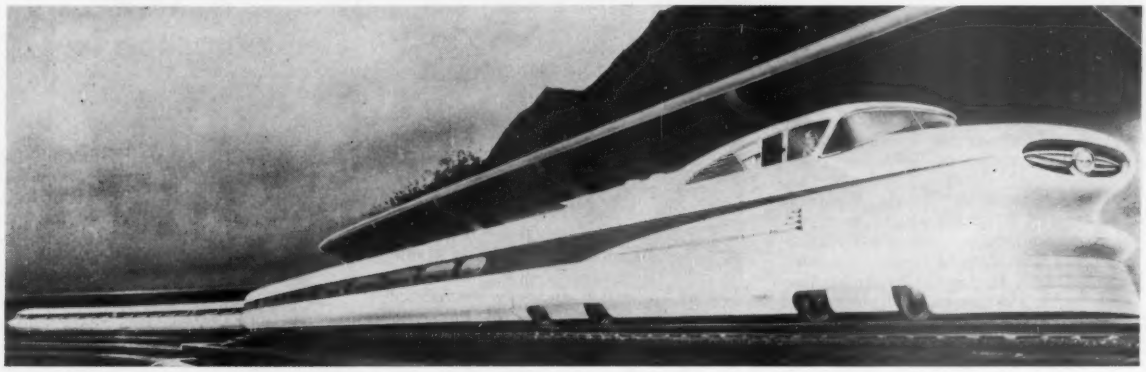


GM Describes Its New Train

"New concept" in rail transportation, "even more startling than Train of Tomorrow," meets goal of costing "less than $1000 per seat"—Design is adapted from GM buses

Harlow H. Curtice, president of General Motors Corporation, has revealed specific details of the lightweight, low-cost passenger train his corporation was known to have been building. He termed the train a "new concept" in railroad transportation. It will have a capacity of 400 passengers and will be able to operate at speeds over 100 mph for sustained stretches. It will be shown to the public sometime later this year and thereafter will be demonstrated on all major railroads, he said (*Railway Age*, March 14, page 5; April 4, page 8).

The train will consist of 10 coaches and a single 1,200-hp diesel-electric locomotive. It will cost less than $1,000 per seat when built in volume production, Mr. Curtice predicted (*Railway Age*, May 16, page 126).

Air Suspension—Cars of the new train are adapted from the body design of GM's Truck & Coach division's 40-passenger intercity type highway coach (*Railway Age*, April 25, page 3). Like the highway coaches, the cars will have air, rather than spring, suspension and many of the suspension parts will be interchangeable with those used in standard "scenicruiser" highway buses. One car end will contain a lavatory and a pantry for serving meals. The other end will be a vestibule with openings on both sides. Doors and steps are designed to permit serving both high and low level station platforms.

Baggage will be carried in compartments under car floors. Thus, while passengers will ride on a higher level, the center of gravity of the coaches will be 10 inches lower than in present railroad equipment. Exterior styling and interior decor have been worked out by the GM styling section. Strength and safety features will be "far in excess" of government and railroad requirements, Mr. Curtice said.

The locomotive will contain a single 12-cylinder GM diesel engine offering 1,200 hp for traction. Fuel consumption will be about 1.3 gal per mile at top speed with full load on level track. The lighter weight and lower center of gravity will permit faster average operating speeds than is possible with present streamlined equipment, Mr. Curtice predicted.

He explained that the train was designed to meet requirements set by a group of railroad presidents who asked car and locomotive builders to explore new ideas in equipment design to cut investment, reduce operating and maintenance costs, lower the center of gravity, increase average speed, improve riding comfort and help reduce the railroad passenger deficit (*Railway Age*, November 22, 1954, page 10; February 21, page 8).

The committee's challenge gave GM a chance to design an entire train as a unit, said Mr. Curtice. "Here, for the first time, was an opportunity to select the most economical prime mover and match it with a train to obtain the ultimate in utilization and economy," he explained. "The size of the diesel engine, the size of the auxiliary engines, the size and weight of the cars, for example, have been determined by the contribution each makes to the most successful whole, from the standpoint of performance, first cost, operating cost, maintenance, repair costs and safety," he said.

Existing Components—To the requirements of these railroad presidents, GM added one of its own—that existing, proved components should be used in the new train wherever feasible. Because these are already in mass production, this means economy, and because they have been long tested, it means reliability, he stated.

Thus, the new train will have standard GM diesel engines and Electro-Motive generators, traction motors and control apparatus (*Railway Age*, December 20, 1954, page 3). Car bodies will be from GM's Truck & Coach division; air conditioning from GM's Frigidaire division; auxiliary diesel engines for train heating and air conditioning from the Detroit Diesel Engine division, and auxiliary generators from the Delco Products division, Mr. Curtice explained.

"General Motors has no intention of going into the railroad passenger car building business," he reiterated. "It is primarily interested in the promotion of the use of its diesel motive

PUBLIC TO SEE NEW GM TRAIN AUGUST 31

The first public display of the new General Motors lightweight train is scheduled to begin August 31. It will be one of the features of the GM "Powerama" exhibit on the Chicago lakefront which will open on that date and continue through most of September. Locomotives, oil well drilling machinery, diesel engines, trucks, buses, and many other products of the corporation's various industrial divisions will be on display, and "live" shows and sound-movie presentations will be employed extensively as supplemental attractions.

power and presents the new cars as a service to its customers in the hope that they may offer a solution to the passenger deficit problem."

The new train will be "even more startling" than the GM "Train of Tomorrow" built several years ago, he added.

FREIGHT CARS

The **Ann Arbor** has ordered seven cabooses from the International Railway Car Company for delivery during the third quarter of 1955.

The **Chicago & North Western** has ordered 905 freight cars at a cost of about $6.5 million from the Pullman-Standard Car Manufacturing Company. The builder's Michigan City, Ind., plant will build 750 50-ton 50-ft box cars. The Butler, Pa., plant will build 155 70-ton covered hopper cars. Delivery of the former is scheduled for September and October; of the latter, for August and September.

The **Detroit, Toledo & Ironton** has ordered 50 70-ton covered hopper cars from the Pullman-Standard Car Manufacturing Company at an estimated cost of $440,000. Delivery is scheduled for August 15.

The **Florida East Coast** has ordered 35 70-ton covered hopper cars from the Pullman-Standard Car Manufacturing Company at a cost of $259,000.

The **Great Northern** has ordered 15 "Airslide" covered hopper cars, each with 2,600 cu ft capacity, from the General American Transportation Corporation at an estimated cost of $200,000. Delivery is scheduled for next November.

The **Minneapolis & St. Louis** has ordered 40 70-ton covered hopper cars from the Pullman-Standard Car Manufacturing Company at an approximate cost of $300,000. Delivery is expected in August.

The **Norfolk & Western** has ordered 50 70-ton covered hopper cars from the Pullman-Standard Car Manufacturing Company at an approximate cost of $400,000. The cars have been delivered.

The **North American Car Corporation** has ordered 30 70-ton covered hopper cars from the Pullman-Standard Car Manufacturing Company at an approximate unit cost of $8,000. Delivery is scheduled for next August.

The **Rock Island** has ordered 38 70-ton covered hopper cars from the Pullman-Standard Car Manufacturing Company. Delivery has been completed.

The **St. Louis Southwestern** has ordered 225 50½-ft 50-ton box cars from the Pullman-Standard Car Manufacturing Company at an approximate cost of $1,750,000. Delivery is expected during the third quarter of 1955.

The **Santa Fe** has ordered 300 70-ton covered hopper cars from the Pullman-Standard Car Manufacturing Company. Deliveries are expected to begin next September.

The **Wabash** has ordered 10 cabooses from the International Railway Car Company. Delivery is expected during the third quarter of 1955.

PASSENGER CARS

The **Duluth, South Shore & Atlantic** has ordered one rail diesel car (RDC-1) from the Budd Company at an estimated cost of $164,000. Delivery of the car, which will operate between Ishpeming, Mich., and St. Ignace, is scheduled for next August.

The **Railway Express Agency** has ordered 200 50-ton high-speed refrigerator cars from the General American Transportation Corporation at a cost of $4,000,000. The cars are in addition to 300 previously ordered (*Railway Age*, December 20, 1954, page 38). Delivery of the additional units is expected to begin late in the third quarter of 1955. The cars will be painted bright green, and for the first time agency-owned cars will bear the company's red-and-white diamond insignia, which, in the case of these cars, will be four feet square.

The **Santa Fe** has ordered 50 baggage-car shells from the Pullman-Standard Car Manufacturing Company. Deliveries will begin about December 1.

LOCOMOTIVES

The **Long Island** has ordered 10 1,600-hp general purpose diesel units from Alco Products at a cost of $1,600,000. Delivery is scheduled for next September and will permit the road to scrap its 12 remaining steam locomotives. The new units, authorization to purchase which was reported in *Railway Age*, May 30, page 10, will give the LI a fleet of 75 diesels, more than half of which will operate in passenger service, pulling about one-fifth of its 690 daily passenger trains. The other four-fifths are self-propelled by third-rail power.

NEW CAR ORDERS SHOULD INCREASE

"The general high level of basic industry expected for the rest of this year will continue to make heavy demands on the nation's freight car fleet," W. E. Callahan, manager, Open Car Section, Car Service Division, Association of American Railroads, told the Southeast Shippers Advisory Board at its 110:h regular meeting at Nashville, Tenn., June 16.

Because of this situation, Mr. Callahan added, "many railroads are now considering placing substantial orders for cars"; orders for such new cars should, he said, be "materially increased" in the near future.

Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended June 11 totaled 786,707 cars, the Association of American Railroads announced on June 16. This was an increase of 73,034 cars, or 10.2%, compared with the previous holiday week; an increase of 89,124 cars, or 12.8%, compared with the corresponding week last year; and a decrease of 10,545 cars, or 1.3%, compared with the equivalent 1953 week.

Loadings of revenue freight for the week ended June 4 totaled 713,673 cars; the summary, compiled by the Car Service Division, Association of American Railroads, follows:

REVENUE FREIGHT CAR LOADINGS

For the week ended Saturday, June 4

District	1955	1954	1953
Eastern	112,304	94,942	132,605
Allegheny	137,264	111,272	158,026
Pocahontas	58,655	44,615	56,741
Southern	121,637	109,107	125,292
Northwestern	116,445	102,682	127,308
Central Western	112,634	99,085	116,940
Southwestern	54,734	50,611	58,577
Total Western Districts	283,813	252,378	302,825
Total All Roads	713,673	612,314	775,489
Commodities:			
Grain and grain products	43,979	39,514	47,434
Livestock	5,565	5,633	7,826
Coal	123,714	94,413	127,058
Coke	11,154	7,146	14,126
Forest Products	41,969	38,715	45,470
Ore	78,209	69,793	90,757
Merchandise l.c.l.	56,772	51,919	67,246
Miscellaneous	352,311	305,181	375,572
June 4	713,673	612,314	775,489
May 28	790,176	689,292	786,755
May 21	774,419	681,967	769,618
May 14	757,333	677,540	779,805
May 7	740,935	647,954	765,411
Cumulative total, 22 weeks	14,930,375	13,765,287	15,935,495

Competitive Transport

Western Truck Strike Is Settled

An agreement on a wage increase has been reached between major western for-hire trucking firms and AFL teamsters, ending the 23-day strike that almost completely tied up intercity trucking in 11 western states.

Long-haul truck lines were expected to resume normal operations about June 16. Short-haul lines returned to normal operation almost immediately after the agreement was reached several days earlier.

Holcombe Parkes

P. Harvey Middleton

Parkes to Head New RPI

Will take office July 1—Middleton, head of predecessor Railway Business Association, to retire

Holcombe Parkes, vice-president and director of public relations of the New York advertising firm of Benton & Bowles, Inc., has been named president of the newly organized Railway Progress Institute—formerly the Railway Business Association. Mr. Parkes, who will assume his new duties July 1, will be located at the RPI's Chicago headquarters. He succeeds P. Harvey Middleton, president of the former RBA, who is retiring. Creation of the RPI to succeed the RBA was reported in *Railway Age* May 30, page 7.

Mr. Parkes, who was born at Mt. Vernon, Ill., March 14, 1896, and educated at the University of Illinois, began his career by working for both railroads and newspapers during and between school terms prior to World War I. During that war he was in the French army and later an infantry lieutenant in the U.S. army, working for the Associated Press in the interval between his two periods of military service.

***Railway Age* Editor**—From 1919 to 1923 Mr. Parkes was an associate editor of *Railway Age*, being employed at the same time in advertising, publicity and public relations work for the Western Railroads and the Association of Railway Executives. In April 1923 he went to the Norfolk & Western to establish and edit its company magazine; in 1928 he also organized its advertising-publicity department, and for the next eight years acted in the triple role of editor, advertising manager and publicity director.

In 1935 and 1936 he served in an advisory capacity on development of the advertising and public relations program of the Association of American Railroads; on July 1 of the latter year he obtained a leave of absence from the N&W to become the AAR's associate director of public relations, continuing, however, to work with the N&W as an advisor on activities formerly under his jurisdiction. He left the AAR November 15, 1941, to become assistant to president of the Southern, with responsibility for its advertising and public relations, and shortly thereafter was elected also secretary of the Southeastern Presidents' Conference.

On September 1, 1945, Mr. Parkes was appointed vice-president — public relations, of the National Association of Manufacturers. He resigned from that position February 6, 1950, to become executive vice-president of the Apex Film Corporation; and joined Benton & Bowles in his present position June 18, 1951.

Mr. Middleton is a native of England, where he was born in 1882. After working on various newspapers and magazines, and as a free lance writer, both in England and the United States, he joined the RBA in 1913, as executive assistant, which position he held until 1918. From that year until 1922 he was engaged in making economic surveys of various countries and industries, principally for the Guaranty Trust Company of New York. He rejoined RBA in 1922 and has been with it continuously since.

He is author of numerous books and articles on railroads, the railroad supply industry and the economy of a number of countries.

●

P. J. Kendall, vice-president and general auditor, Southern Pacific, will be the speaker at a dinner meeting of the **Pacific Railway Club,** at the Mart Club, San Francisco, at 6 p.m., June 23; his subject, "Looking Forward in the Railroad Industry."

Railroads File In Ex Parte 175

The railroads have filed with the Interstate Commerce Commission evidence supporting their petition to make the Ex Parte 175 rate increases a permanent part of the rate structure. The evidence included statements by William T. Faricy, president of the Association of American Railroads, and eight road presidents representing the territories.

As indicated in *Railway Age*, June 13, page 7, the railroads' general financial presentation was made by Graham E. Getty, AAR assistant vice-president and assistant director of the Bureau of Railway Economics. He warned that loss of the Ex Parte 175 increases would threaten the railroads with "financial disaster."

The presidents confined their statements to conditions on their own roads but their reports could be taken as indicative of the territorial and national picture of railroad operations and revenues. The presidents were W. E. Dillard, Central of Georgia; J. A. Fisher, Reading; Donald V. Fraser, Missouri-Kansas-Texas; Frank M. Hicks, Gulf, Mobile & Ohio; E. W. Johnston, Erie; John P. Kiley, Milwaukee; Robert S. Macfarlane, Northern Pacific; and James M. Symes, Pennsylvania.

The railroad presentation was made necessary by the commission's denial of the railroad petition which sought to have the increases made permanent without further proceedings. The increases are now authorized as surcharges which expire at the end of this year. They amount to a general advance of 15% with exceptions for some traffic, including coal, on which lower bases apply.

The railroads, as reported in *Railway Age*, April 25, page 7, asked the ICC to cancel this expiration date, citing a continued need for the rate increases. Opposition came from many sources and the commission announced that it would accept evidence supporting the railroad petition and rebuttals from opponents in advance of a hearing for cross-examination of witnesses —if requested—and oral argument before the full commission.

Mr. Faricy's statement set forth the view that continuation of the increases is vital to the railroads if they are to improve a seriously worsening car supply situation.

He said car ownership totals fell by nearly 55,000 cars in the 15-month period ended May 1—3.1% of ownership—while bad order car totals came to 113,543 or 6.6%. "Drastic declines" in revenues after February 1954 forced the railroads, he said, to cut all expenditures sharply, notably in car purchasing and maintenance.

"Obviously," he went on, "th's attrition in freight car ownership must be brought to a halt soon and, in fact,

must be turned in the other direction." But, Mr. Faricy warned, "loss of Ex Parte 175 surcharges would sound the death knell to any hope of stopping the downward trend in the car supply."

In support of the railroad position that the expiration date of the increases ought to be cancelled, Mr. Faricy declared he is convinced that "attaching expiration dates to the authorized increases is a real and serious deterrent to commitments for capital expenditures, including freight cars."

Mr. Getty's statement argued that although railroad revenues are expected to be $249 million above 1954 they will still be $1 billion below 1953 totals and are expected to produce a rate of return of only 3.65%. The evidence submitted by Mr. Getty was a follow-up on a statement he filed with the ICC in April in support of the railroad petition to make the increases permanent.

Without the $858 million in revenues from the Ex Parte 175 increases last year, he said, net railway operating income would have fallen off by 76% to $210 million, the equivalent of a rate of return under 1%.

"Similarly, estimated operating revenues in 1955 would be less by $884 million and estimated net railway operating income would amount to $350 million or a rate of return of only 1.31%, he continued. Further, Mr. Getty stated, "no amount of additional traffic within the realm of reasonable expectations could offset the disastrous effects of such a loss in revenues."

PROFIT CONTROL BAD

Secretary of Commerce Weeks has suggested that technological progress in regulated industries would be stepped up if the policy of regulating rates by limiting profits were abandoned.

He told the Mountain-Pacific Conference of Public Utility Commissions that an important consideration in the light of prospective future conditions is "whether a rate is reasonable if it does not stimulate research to the fullest possible extent, does not recognize obsolescence and does not encourage the rapid development and use of equipment which can increase efficiency and cut costs."

Mr. Weeks does not think the profit-limitation approach is required by regulatory laws. He thinks it was adopted as the "easiest practical way to regulate." In his judgment, "it is not only possible but almost surely probable that rates to the public would be lower and service better if the return on investment were higher and the stimulation to progress thereby greater."

Law & Regulation

Do Some Carriers Fear Competition?

Weeks cannot see how Cabinet Committee recommendations favor any form of transport, unless some agencies "want to be protected against competition"—Then they have burden of proving "their protection is in the public interest"

Secretary of Commerce Weeks, who headed President Eisenhower's Cabinet Committee on Transport Policy and Organization, said last week that criticism to the effect that the committee's recommendations are intended to favor one kind of carrier more than another "is not so."

"Our recommendations," he said, "are to let all carriers compete under the same wording of the law. I cannot see how that favors one kind of transportation over another—unless it be that some transportation agencies want to be protected against competition. If that be the case, it seems to me that they have a heavy burden of proof upon them to show that their protection is in the public interest."

Basic Idea—Secretary Weeks spoke June 13 in Reno, Nev., at a meeting of the Mountain-Pacific States Conference of Public Service Commissions. He identified the Cabinet Committee's "basic idea" as one pointed toward strengthening regulations "which protect the common carrier and assist it in assuring the fulfillment of its obligations."

These obligations "are to provide dependable service at published rates open to all without discrimination," Mr. Weeks said. He noted that the railroads have had them "for a long time," and that Congress has extended them to the trucking industry within the last 20 years.

Support for Common Carriers—"However," he continued, "our experience is that only a small part of trucking for hire is carried on by common carriers. It is our belief that the common carrier provisions applying to the trucks should be strengthened. It is our belief that unless this is done, the common carrier obligations as applied to the trucking industry will continue to dwindle and may finally disappear . . . If there were no common carrier trucks, the little businesses and the sporadic shippers would be without dependable service at published rates and would be subject to discrimination.

"The second premise which we hold is that transportation has become in fact highly competitive. It is our belief that competitive rates should be made by competition and not by regulation. We do not believe that a regulatory commission should decide at what rates the carriers should compete."

Losing Trains—Secretary Weeks also discussed the Cabinet Committee's recommendation that the Interstate Commerce Commission be given authority to override state commissions to permit discontinuance of unprofitable passenger trains. He told his audience of state commissioners that such authority seems appropriate for the federal commission when it is recog-

"OFFICIAL" INSPECTORS of new passenger cars being built for the Santa Fe & Disneyland Railroad (*Railway Age*, June 13, page 16) check window design and construction with Walt Disney himself. Nancy Burroughs, whose father is a member of the Santa Fe's staff in Los Angeles, and Jimmie Shelton, son of R. D. Shelton, general manager, Santa Fe Coast lines, gave the equipment their unqualified approval.

nized that state commissions "do not have the main responsibility for the success of national mass transportation," while they do have "constituents who desire to maintain local passenger service whether it be compensatory or not."

In closing, the secretary of commerce urged those with the "public interest at heart" to examine the report "instead of jumping at hasty conclusions." He went on to express his belief that anyone making that approach will find the report to be "a pattern for transportation which does not favor one kind of carrier more than another but does meet modern economic needs, strengthen national security and give the consumer a better break."

Roads and Railway Labor Agree on Transport Report

Railway labor will work with the railroads in support of legislation drafted to implement the President's Advisory [Cabinet] Committee Report on Transport Policy and Organization (*Railway Age*, April 25, Page 49).

The Association of American Railroads and the so-called standard railway labor organizations announced this agreement following a meeting of the chief executive officers of the unions and representatives of the board of directors of the AAR June 15.

The joint announcement said that "after careful consideration of the proposals now before Congress to create a modern transportation policy, the railroads and railroad labor are in agreement as to most of the major objectives of the legislation."

They agreed that only through "a public policy which will give all forms of transportation an equal opportunity to compete for the available traffic" can a healthy transportation system be maintained.

"Consequently," the announcement concluded, "the railroads and their employees will support the principal aims of the legislation and will work together to bring about a public understanding of the great need for prompt enactment of remedial measures."

Operations

PRR Extends Piggyback; Adds Midwest-East Train

The Pennsylvania last week extended its "TrucTrain" trailer-on-flat-car service to the Louisville and Indianapolis areas.

Overnight service is now provided between Louisville, Indianapolis and Chicago, with trailers loaded in the late afternoon in each city and placed for unloading the next morning. Second-day delivery is provided between the two Midwestern cities and the Pittsburgh, Philadelphia and New York areas. Hawthorne yard in Indianapolis is the receiving point for trailers in that area, and trailers in the Louisville area will be received at Portland Avenue yard.

The PRR also has introduced a new through train providing expedited movement of carload and perishable freight from the midwest to New York and Boston, with second-morning delivery in both cities. The train, "CNY-2," leaves the road's 59th Street yard, Chicago, at 9:30 a.m., permitting movement the same morning of eastbound cars just arrived from the far west with perishables, and of cars from the midwest with meat for eastern markets.

"CNY-2" reaches terminals serving the New York metropolitan area on the afternoon of the following day. Cars for New York, Brooklyn, Jersey City, N.J., and Newark are available for immediate delivery or, where desired, delivery early the next morning.

Cars for Boston are delivered to the New Haven by 4:30 p.m. and arrive at their destination at 4:15 the next morning.

Erie Tests NH Piggyback Cars

To determine the possibilities of interchanging such equipment with other railroads, the Erie is testing two piggyback cars built to a special design developed in France, and owned by the New Haven.

Like the Erie's own piggyback flat cars, the NH units are each 75 ft long, and carry two highway trailers. They were described and illustrated in *Railway Age* March 7, page 45.

New Facilities

$16 Million for New Frisco Yards

Largest yard construction program in company's history calls for a completely new yard at Memphis; enlarged and modernized yard at Tulsa—Completion expected before mid-1957

Directors of the St. Louis-San Francisco have approved a $16-million yard construction program to provide new or completely rebuilt facilities near Memphis, and at Tulsa, Okla. (*Railway Age*, June 13, page 7).

Larger of the two projects is a wholly new yard at Capleville, Tenn., near Memphis, to replace present facilities at Yale yard. Work on the new yard will begin about July 1 and continue for about 30 months.

The Tulsa project will utilize the site and some of the buildings of the present facility there.

Both yards will be retarder operated —the first on the Frisco system. The Memphis yard will feature electrically-operated retarders, while mechanically-operated retarders will be installed at Tulsa. In both cities the Frisco has outgrown present facilities, President Clark Hungerford says.

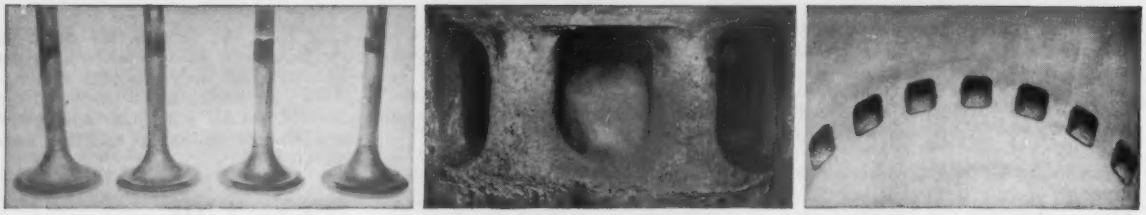
The Tennessee yard will be on a site of more than 300 acres which the Frisco has been acquiring during the past year. It will have a 198-ft main retarder and five group retarders each 99 feet long. A 95-ft electronic scale will be located near the crest of the hump. Fifty classification tracks will be divided into five groups of 10 each, ranging in capacity from 30 to 53 cars, with a total capacity of 1,938 cars. In addition there will be an icing track, a caboose track, two bad order tracks, and a seven-track local yard. The ice dock will have a capacity of 40 cars and an ice unloading platform with a capacity of six cars.

An office building will house the terminal superintendent and departmental staffs. It will have wash, locker and recreation room facilities, and an assembly room. There also will be a restaurant and a 75-bed hotel. Yardmaster towers and other buildings will provide for switchmen's wash and locker rooms, supply rooms, a sewage disposal plant and a water treatment system comprising two wells, pumps and two 50,000-gal storage tanks.

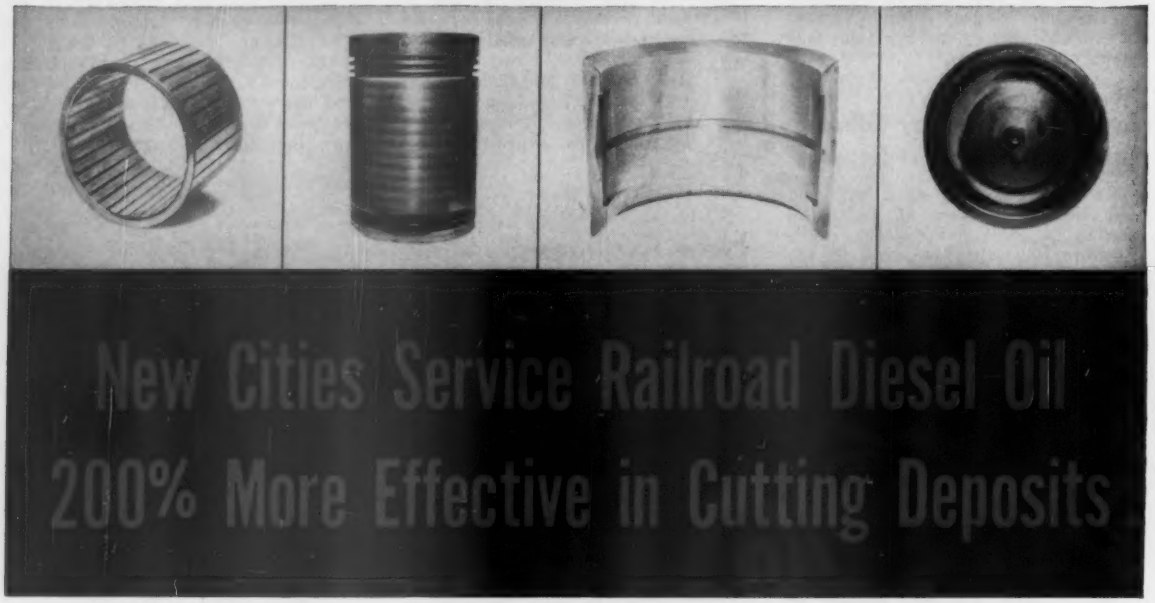
Mechanical Facilities—A diesel repair and service shop with five engine servicing tracks will be provided. In addition to servicing equipment, the shop will house offices for the general foreman, shop foreman and other personnel, wash and locker rooms for enginemen and shop men, a heating and compressor room, machine, carpenter, electric, pipe, parts reconditioning, air brake repair, filter and parts cleaning and radio repair shops.

The repair yard will have a lumber and storeroom track, a wrecker track and three rip tracks—the latter under cover of a full span steel shed 80 by 500 ft mounted 22 ft over the tracks. An adjoining building 20 by 500 ft will house machine, blacksmith, paint and mill shops, supply, tool, airbrake, packing and oil storage rooms, wash locker and heating rooms and an office. There will be a separate storeroom and a lumber storage building.

Additional trackage will include two drill tracks—each of 160-car capacity —at the south end of the yard, and two drill tracks with a capacity of 162



UNRETOUCHED PHOTOGRAPHS OF ENGINE PARTS AFTER EXHAUSTIVE ROAD SERVICE TESTS USING NEW PACEMAKER RD-80 DIESEL OIL.



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and 166 cars respectively for train makeup at the north end. There will be a thoroughfare track, and at the north end of the departure yard a 70-car tail track. The inbound yard will have a total capacity of 1,117 cars on seven tracks, which individually will hold from 150 to 166 cars.

Yale yard, which the new Capleville yard will replace, was built in 1927.

Tulsa Revisions—The Tulsa project is somewhat smaller. There will be 40 classification tracks in four groups of 10 each. They will handle from 26 to 60 cars with a total capacity of 1,660 cars. There also will be a caboose track and a bad order track.

The main retarder at Tulsa will be 148.5 ft long and each of the four group retarders will be 99 ft long. As at Capleville, there will be a 95-ft electronic scale just beyond the crest of the hump. Humping operations will be made over one drill track with a capacity of 160 cars. Makeup engines working at the north end of the yard will remove cars to departure tracks. Both inbound and outbound trains north and southbound will be handled in a three-track yard west of the classification yard. Each track here will have a 160-car capacity. There also will be a thoroughfare track, and a 160-car lead track.

Plans call for utilization of present buildings wherever possible. The biggest new structure will be a yard office building to house the terminal superintendent; clerical, special service and other departments; and a recreation and assembly room. Yardmaster towers and other buildings will provide wash and locker rooms for switchmen and car checkers, supply rooms, etc. An under-car inspection pit is also planned. A driveway system within the yard will include an underpass beneath the crest of the hump. Present floodlighting and communications systems will be expanded.

Work at Tulsa will begin "this year" and take about two years.

Supply Trade

Clark, Rail-Trailer Form Subsidiary for Mobilvans

The Clark Mobilvan Corporation has been formed as a subsidiary of the Rail-Trailer Company and the Clark Equipment Company, to "develop Clark's new Mobilvan container system in the field of rail-highway freight transportation."

Eugene F. Ryan, president of Rail-Trailer, will head the new company. While the new corporation has been organized as a wholly owned subsidiary of Rail-Trailer, Clark Equipment has an option to acquire a controlling interest in the new firm and the right to name a majority of its directors.

A detailed description of Mobilvans appeared in the February 21 *Railway Age* page 53. Earlier models of this piggyback-container equipment, then known as the Canadian Rail Van System, were described in the August 9, 1954, issue, page 59. John Bridge, who conceived the rail-van idea—common, demountable bodies for flat bed truck trailers or flat cars—remains actively associated with the new corporation.

"The economic advantages of a coordinated freight container system have been recognized for many years," Mr. Ryan said when the new corporation was announced June 14, "but they never could be fully developed in this country in the absence of effective coordination of rail and highway freight services. . . . The new [piggyback] approach to rail-highway coordination and the Mobilvan system go hand in hand. We expect to demonstrate that a considerable volume of freight now moving in conventional types of equipment can be handled to better advantage in Mobilvans."

Robert H. Davies, executive vice-president of Clark Equipment, is now also vice-president of Clark Mobilvan.

SAMUEL M. FELTON (left), has been appointed president of American Car & Foundry division of ACF Industries, Inc. He has been president of Shippers' Car Line Corporation,

ACF subsidiary, since 1950, and has been succeeded in that position by HARRY J. LEDDY (right), executive vice-president of the Car Line Corporation.

The **Budd Company,** on July 1, will assume ownership and management of a wholly owned subsidiary: Continental-Diamond Fibre division. The new subsidiary was created by purchase from the **Continental-Diamond Fibre Company** of four plants and of subsidiaries in Canada and France. These plants are engaged in production of laminated plastics for industrial use and insulating tapes. Included is a full line of railway track insulation. The name of the old Continental-Diamond Fibre Company will be changed to the **Haveg Company,** which will continue to own and operate one plant and a British subsidiary, engaged in manufacture of plastics used in the chemical industry.

Wilson Engineering Corporation has opened a new general office at 6 N. Michigan ave., Chicago.

F. B. Harrison, Jr., formerly manager of western railway sales for **United States Rubber Company,** has entered the railway supply field under the name of **Harrison Railroad Supply Company,** with headquarters at 215 N. Aberdeen st., Chicago.

American Brake Shoe Company has purchased all outstanding stock of **Denison Engineering Company,** Columbus, Ohio, manufacturers of hydraulic presses, pumps and automatic controls. No change will be made in the Denison management or in operations of its two plants.

Robert J. Baumann has been appointed manager of industrial marketing for O-Cel-O division of **General Mills.** He was formerly sales manager for **General Electric Company's** silicone products department.

L. B. Foster Company has established a new office at 805 Peachtree st., N.E., Atlanta, Ga., in charge of **Paul A. Duke,** formerly associated with **Atlantic Steel Company.**

Richard J. Stamberger, sales representative for **Youngstown Sheet & Tube Co.** at New York, has been appointed assistant New York district sales manager.

J. Lyle Thomas has been named sales manager, Railway division, of **National Malleable & Steel Castings Co.** in Richmond, Va., succeeding **John R. Kingman,** recently advanced to the company's general offices in Cleveland, on special asignment with the Railway division.

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Senators Quiz White, Young

Morse hints investigation of ICC—Young, clashing with Lehman, defends Richardson-Murchison "deal"—White sees large holdings by directors as risky

Hint of a possible Senate probe of the workings of the Interstate Commerce Commission and pointed criticism of a former commissioner enlivened the appearance of William White and Robert R. Young before a Senate subcommittee June 8 and 9.

The two were principals in last year's struggle for control of the New York Central. Mr. Young, the winner, is now chairman of Central's board of directors, and Mr. White is president of the Delaware & Hudson. They were called before the subcommittee to give their views on the need for legislation to control proxy fights. The hearing was conducted by Senator Lehman, Democrat of New York.

Questioning by him drew from Mr. Young sharp criticism of former Commissioner James K. Knudson, whom he accused of voting against the Young faction in the Central contest following a commission investigation although Mr. Knudson "was already employed by outside interests." The underlying theme of Mr. Young's presentation was a sweeping denunciation of "corporate collusion against the public interest."

The probe of the ICC was indicated during Mr. White's appearance. Senator Morse, Democrat of Oregon, raised the question of "political force" exerted on the ICC to persuade it not to conduct an open investigation of the Young group's attempt to win control of the Central. The senator said he was developing "a growing interest in the activities of the ICC," and added that his questions were leading up to "certain other action" he has in mind.

Other highlights of the hearing included the following:

An angry dispute between Senator Lehman and Mr. Young over details of the transaction in which Clint W. Murchison and Sid W. Richardson acquired 800,000 shares of New York Central stock for $20 million and then voted their shares for the Young faction.

Conflicting opinions voiced by Mr. Young and Mr. White on the issue of whether corporate directors should be required to have substantial holdings in the companies they run.

Defense by Mr. White under questioning by Senator Capehart, Republican of Indiana, of a shareholder's right to keep his holdings as private as his bank account, with the qualification that he should be identified if he wishes to vote his stock.

Agreement between the former and present heads of the Central that a stockholders' faction should be reimbursed for proxy campaign expenses if it wins control of a company—as in the case of the Young group on the Central. However, Mr. White said he opposed this if the successful group persisted in suing the deposed faction. He said the Young group is suing the former Central directors for $550,000.

Disclosure by Mr. Young that he was a White House guest during the proxy campaign—but only after an official from a banking institution that opposed him was there—and a declaration by him that President Eisenhower maintained strict neutrality in the contest and ordered his staff to do likewise.

Mr. White said he had been troubled by the question of whether corporate directors ought also to be large stockholders, and said he had decided this was not necessary. It could lead, he said, to making wealth a prerequisite and said directors should be chosen for the experience in management they can provide. He said where directors own large blocks of stock they might act for their immediate gain and to the "long term detriment" of the corporation.

Senator Lehman differed with him on this point, and found a supporter for his views in Mr. Young, who assailed what he termed domination of the Central by four bankers "owning among them only 450 shares of Central stock." More to the point of his protest, however, was the issue of interlocking directorships with resulting conflicting interests.

"Corporate incest" is the term he used for such relationships, and he called for Congress to "prohibit the interlocking of directors and officers of banks, investment bankers, investment companies, insurance companies, mutual savings banks, pension funds, endowment funds and foundations with or through other large corporations."

Mr. Young and Mr. Lehman clashed heatedly over the Murchison-Richardson purchase of Central stock. The financier termed this the "cleverest deal in my financial history" and the senator remarked it seemed to him "too clever." Mr. Young complained that the public has been misinformed on this transaction and misunderstands it. "You're confused right now," he told Mr. Lehman, going on to insist that the only risk involved in the transaction was to himself, to Allan P. Kirby, president of Alleghany Corporation, and to Mr. Murchison and Mr. Richardson.

He said the deal guaranteed Alleghany against loss and added "we've made $10 million out of it and I'm proud of it."

Senator Morse, who was not present to question Mr. Young when he appeared, raised the question of political pressure on the ICC during questioning of Mr. White. The former president of the Central said he had no direct knowledge of such influence but heard the comment that "somewhere, there must be pressure on the ICC not to go into this thing." With Senator Morse in complete agreement, he said he felt the ICC should have conducted an open investigation of the Young group's attempts to win control of the railroad.

Mr. Young called attention to this (*Continued on page 90*)

NEW STATION of the New York & Long Branch at Long Branch, N.J., was formally opened to the public June 8. The new $150,000 structure —built by the A. B. Schurman Construction Corporation, East Rutherford, N.J. — replaces a 79-year-old building as a result of a community-railroad agreement to swap three old stations for one new one. Train stops at two of the city's three other stations — West End and Branchport — have been eliminated, permitting a reduction in runing times of most NY&LB trains. Passenger-train service at the fourth station, Elberon, is continuing.

Questions and Answers FOR THE TRANSPORTATION DEPARTMENT

The late L. F. Loree, in his book "Railroad Freight Transportation," devoted some space to the position of division accountant. Mr. Loree recommended such a person should be at the "seat" of operations on a division, so operations could be depicted clearly in the accounts. Since the position of division accountant has been abolished on most roads, how are the objectives cited by Mr. Loree being obtained?

Division accountant gone—but not division accounting.

"Our two primary reasons for centralization of accounting on Western Pacific are to effect substantial economies, and to increase the speed and accuracy of processing basic data.

"As to the question of objectives cited by Mr. Loree, there is some doubt that proximity of the division accountant to the seat of operations increases accuracy, since he cannot directly observe operations. His function is to classify and summarize detail information prepared by maintenance and transportation personnel. We believe this routine account distribution and summarization can be accomplished equally well in a central office.

"Divisional supervisors certainly should be acquainted with unfavorable results. We believe, however, that these results can be more economically and currently reflected by centralized procedures than by the relatively cumbersome accounting process.

"It appears to me that division officers should be informed of favorable as well as unfavorable performance, since proper analysis of the former can also contribute to improved results."—*F. B. Whitman, president, Western Pacific.*

"When the Baltimore & Ohio consolidated its division accounting offices into regional accounting offices in 1950, division accounting was not eliminated. Our accounts are still maintained by divisions, and division expenses and statistics are furnished the division officers.

"There still is contact between our division officers and the regional accounting offices. The accounting department has an inspector of accounts stationed at each division superintendent's headquarters who keeps in close contact with the divisional set-up.

"Matters pertaining to adverse trends in local operating practices can be solved similarly to the manner in which they were prior to elimination of division accounting offices."—*W. C. Baker, vice-president—operation and maintenance, Baltimore & Ohio.*

[There will be more on this subject in the next column, in the July 4 issue. In the meantime, readers may be interested to know that, with the coming of fall, we plan to run another of the Car Service "quizzes" which have drawn such widespread response.—*G.C.R.*]

Can a road get paid for handling an empty, received in interchange, which it and the originating road thought was loaded?

Not under existing rules.

A box car was placed for loading grain at an elevator served by road A. The shipper sealed both doors and tendered a bill of lading to the Western Weighing & Inspection Bureau for movement of the car, presumably loaded with grain, to a consignee at a distant point on road B. At destination, car was found to be empty and road B returned it to the owner at the same junction at which it received the empty from road A. Road B billed road A for 1,521 miles empty haul at six cents per mile, this being the mileage from junction where received from road A to destination and return. There are three questions: (1) What is the authority for the bill against road A?; (2) as the WW&IB is an agent of the railroad, is the handling given the car to be construed as a railroad error; and (3) has road B any other recourse for recovering the cost of handling the empty car, other than that given through AAR accounting rule 64?

The answers:

"(1) There is none.

"(2) Yes.

"(3) No, except such as may be worked out with road A."—*Eastern Association of Car Service Officers.*

Can an industry with three facilities at different points at the same station have two average demurrage agreements?

Yes. It can have one, two, or three agreements.

An industry has three facilities at the same station. Two sites are operated by the commercial division and are used for storage. The third is operated by the manufacturing division and used for production. May the two commercial sites be combined in one average agreement, with another average agreement for the manufacturing site?

"Under provisions of Demurrage Rule 9, section G, par. 1, the consignee has the privilege or option as to application of the average agreement at his plants, when all are located at the same station. He may choose to carry all three plants in one average agreement, have three separate agreements, or, as suggested, place two plants under one agreement and the third under a separate agreement."

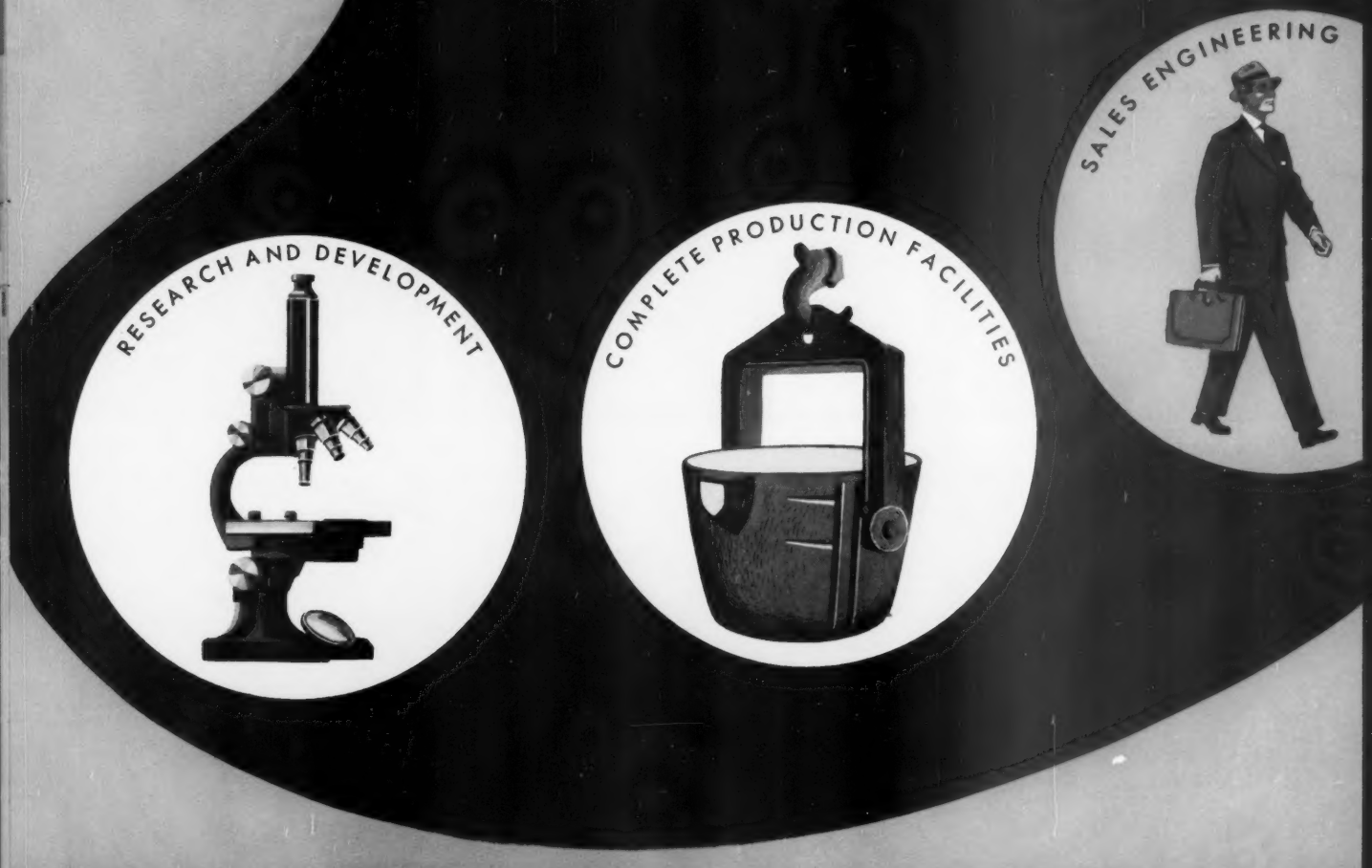
—*Eastern Association of Car Service Officers.*

A REPORT ON ALCOA® ALUMINUM IN THE RAILROAD INDUSTRY!

Alcoa started selling aluminum to the railroads of America almost thirty years ago. Its strength, light weight, corrosion resistance, low maintenance requirements, and long life made it a natural for railroad applications, and won it quick acceptance. Most of those early applications are still in service. Working, and working hard, on the railroads.

But to make aluminum work still better, we've developed special aluminum alloys that would meet the requirements of railroad service. We've perfected processes that make aluminum fabrication simple enough for your smallest shops to handle. We've bought aluminum rolling stock and worked it hard, to see how it stood the gaff. We've trained sales engineers who are experts on aluminum and railroading.

Result: more and more railroads have turned to aluminum, the modern metal that can cut operating costs, reduce maintenance expense. Here is a report on some of the uses these roads have made of aluminum. If you'd like to hear the full story, call your local Alcoa sales office and ask for the railroad sales engineer. ALUMINUM COMPANY OF AMERICA, 2180-F Alcoa Bldg., Mellon Square, Pittsburgh 19, Pa.

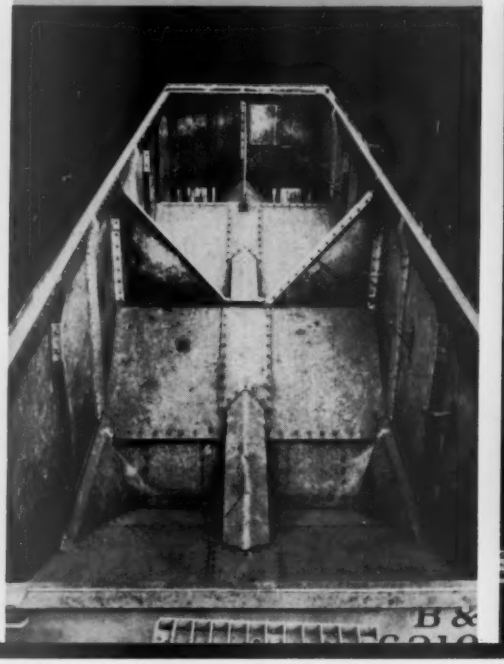


Built of Alcoa Aluminum in 1928, G.A.T.X. Tank Car No. 8000 is still in constant service

Over 2,000 aluminum tank cars have been built since the first went into service 27 years ago. And most of them are still on the job, proving aluminum protects valuable ladings, resists corrosion, keeps maintenance costs down when subjected to rigorous service conditions.

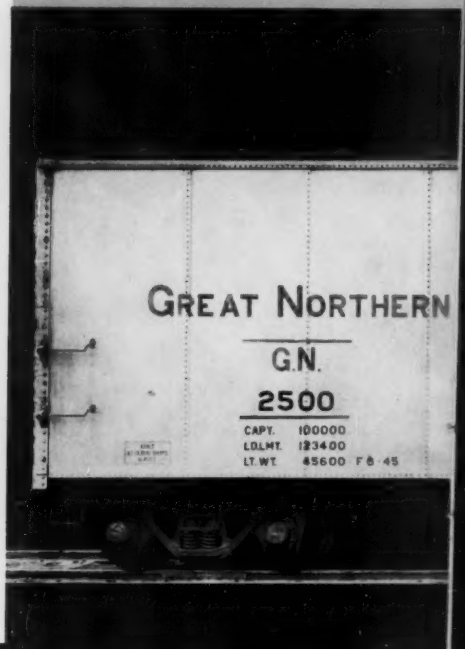
Built of Alcoa Aluminum in 1934, B&O Hopper Car No. 631 000 has never required major repair

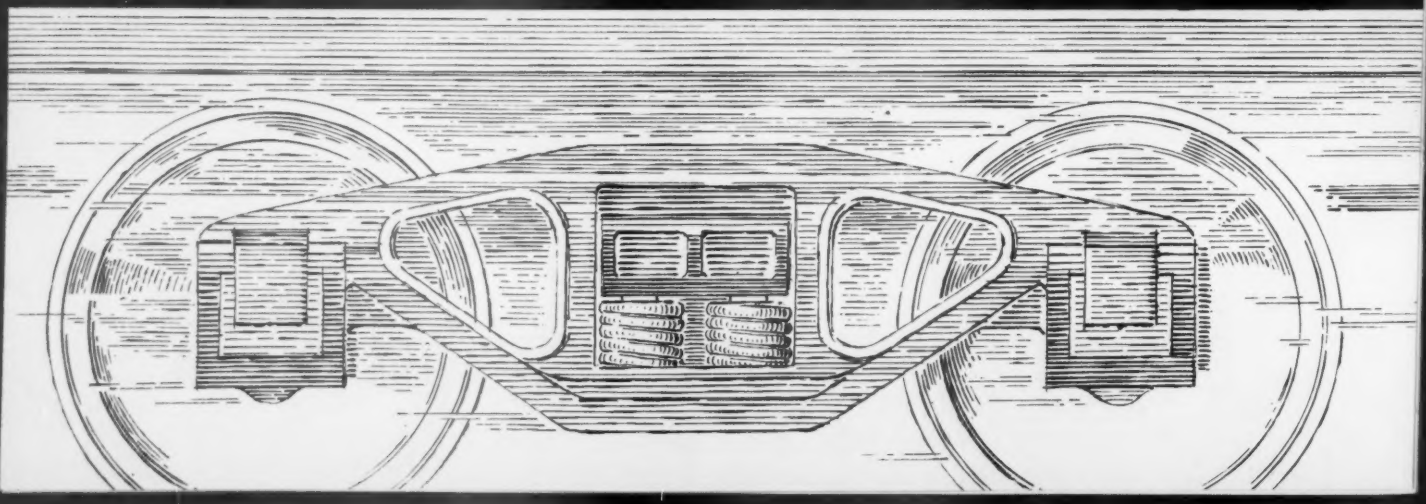
Twenty-one years of rugged railroad service with only infrequent down time for light repairs—that's the record of this aluminum hopper car. Alcoa Aluminum has paid off in substantial maintenance savings, greater car availability, doubled load-to-tare ratio.



Built of Alcoa Aluminum in 1944, Great Northern Boxcar No. 2500 is still in excellent condition

Over 10 years of head end, merchandise and general freight service—without painting—and still in excellent condition! That's the service report on this aluminum boxcar. And aluminum boxcars can be 10 feet longer, gain 25 per cent more cubic capacity and still weigh 20 per cent less than standard 40-foot steel cars.



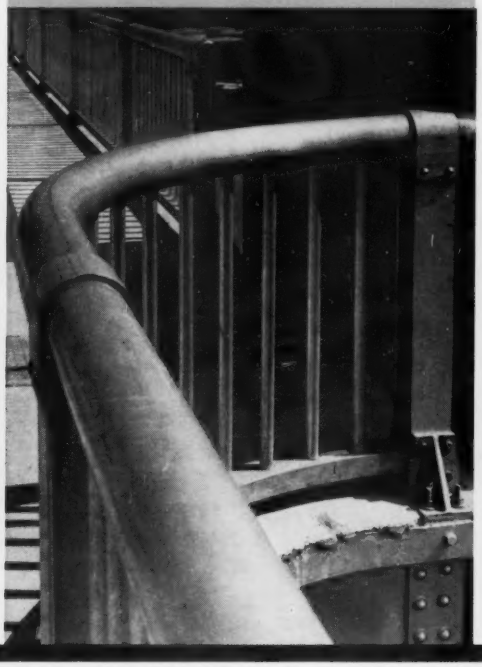


Built of Alcoa Aluminum in 1954, 132 more UP passenger cars

The most consistent user of aluminum in passenger car construction has specified it again in re-equipping their crack streamliners. Experience since 1934 has proved that aluminum allows the use of larger sections for greater impact resistance without increasing car weight.

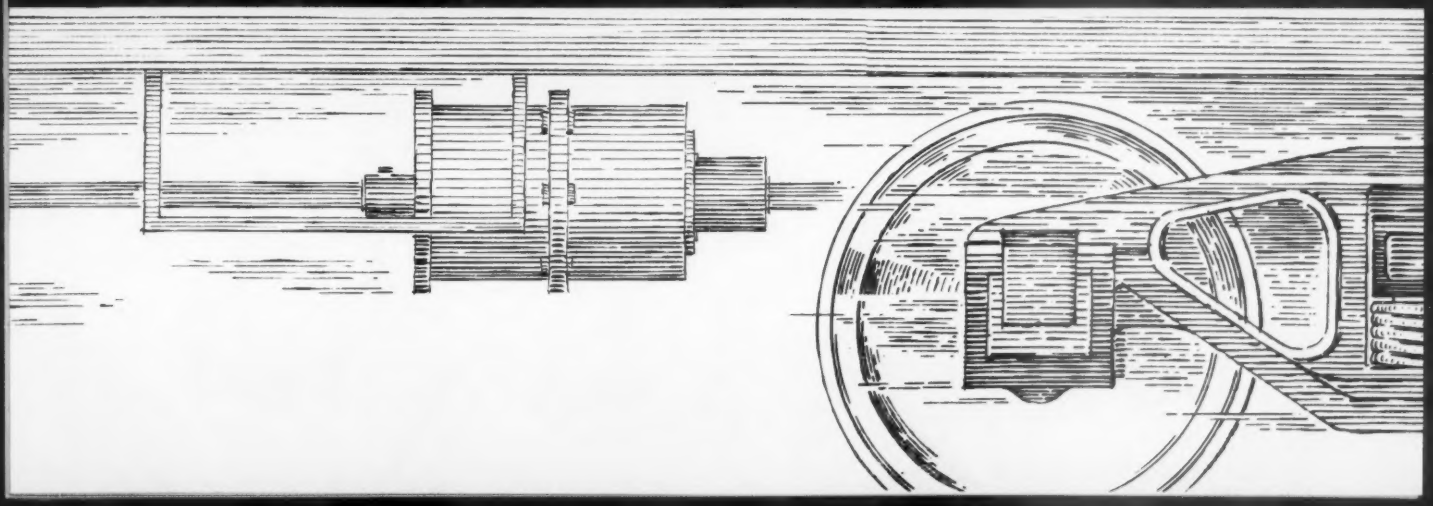
Bridge railings of Alcoa Aluminum in service 27 years

The first bridge railings of Alcoa Aluminum were installed in 1928. In 27 years of service, not a cent has ever been spent for their maintenance. Here is vivid proof, supported by experience in all sections of the country, that construction dollars go further with railings of Alcoa Aluminum.



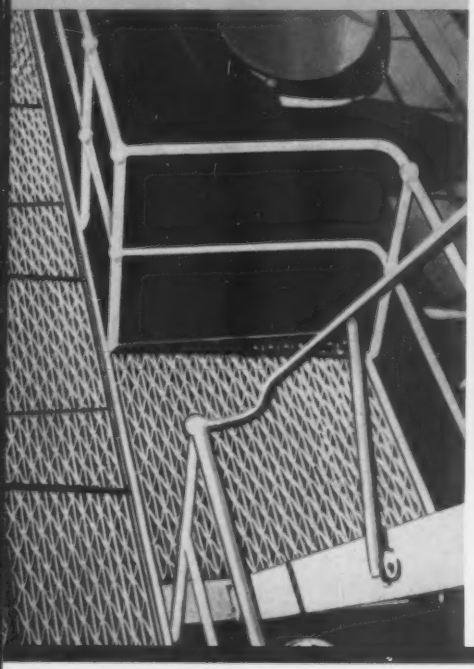
Alcoa Aluminum ordered by the Milwaukee for reflective signs, markers

Because sturdy aluminum alloys defy rust and corrosion, sign maintenance and replacement costs are lower. Even when the message film is breached by vandalism, air-borne acids or traffic damage, there's no progressive rusting or peeling. Repairs can wait indefinitely while the sign continues to perform its function.



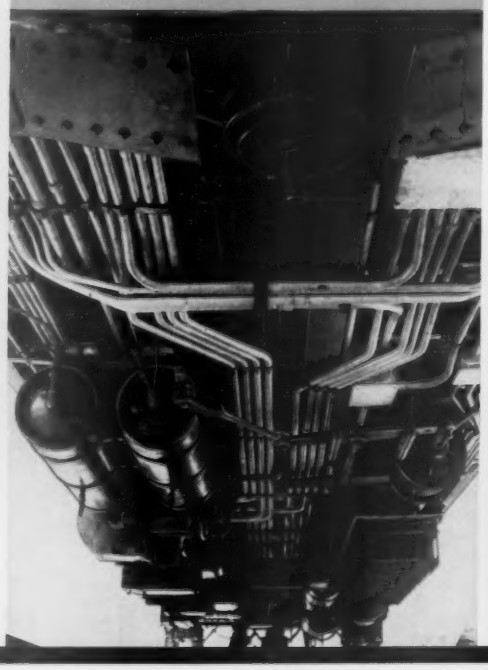
Walkways of Alcoa Aluminum reduce weight 66%

Alcoa Aluminum alloys for walkways combine tensile strength comparable to steel with weight reductions up to 66 per cent. Supporting structures can be lighter and less costly, yet meet standards for safe loading. These lightweight walkways permit easier handling and faster installation and their resistance to rusting and corrosion insures long life without painting.



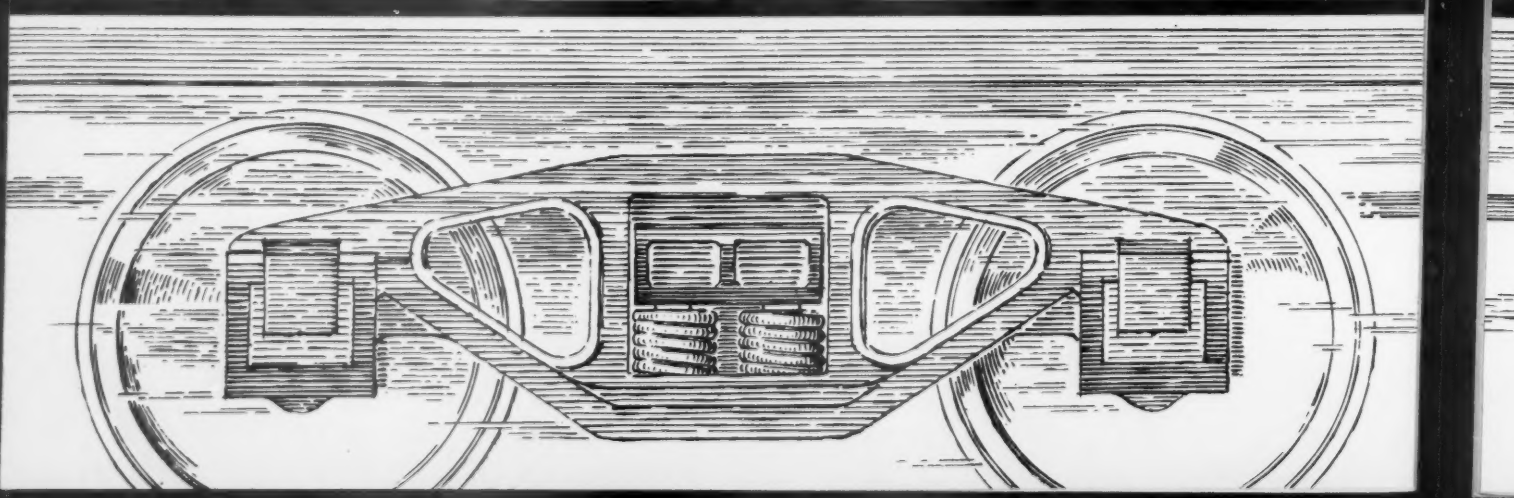
Alcoa Aluminum rigid conduit serves Illinois Central 30 years

Underside view of Illinois Central suburban coaches shows extensive use of aluminum rigid conduit. This installation has been in service since 1925. Rigid and thin wall conduit of Alcoa Aluminum is light weight, corrosion resistant, nonmagnetic.



Southern Pacific "Expediter" service picks Alcoa Aluminum for piggyback trailers

New Pacific Coast Expediter service employs aluminum trailers in its fast second morning delivery service. Light weight, corrosion resistance, and low maintenance features of Alcoa Aluminum mean more payload, less down time for Southern Pacific's growing piggyback network.



Alcoa Aluminum Pipe speeds waybills in Southern Railway's yards

In the Southern's Norris and Chattanooga yards (and 76 yards of 14 other roads) Kelly pneumatic tube systems of Alcoa Aluminum speed the job of classification and sorting. The advantages of Alcoa Aluminum Pipe: lower material costs, lower installation costs, lower maintenance costs, and longer life.

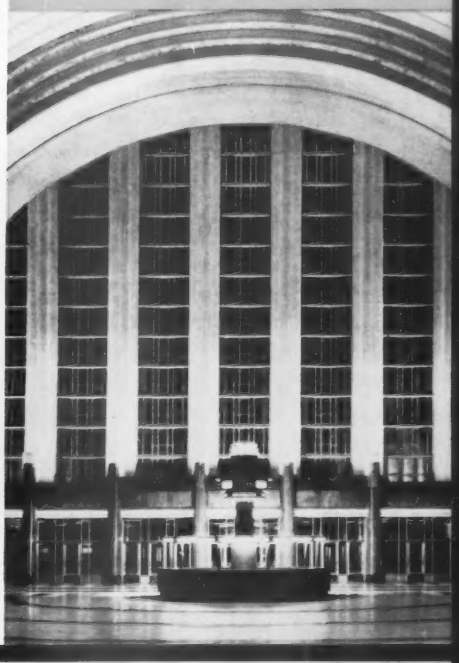
New Haven Railroad specifies aluminum paint of Alcoa Pigments

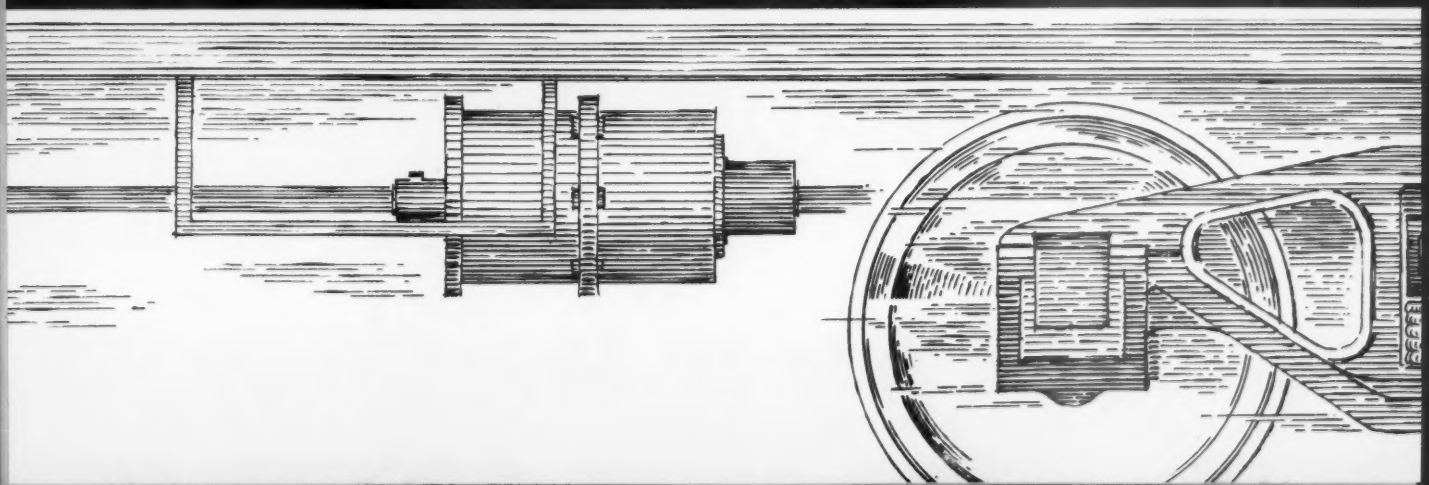
The New York, New Haven and Hartford Railroad has painted 104 bridges with aluminum paint, as a part of its current modernization and expansion program. Where durability and beauty are concerned, aluminum paint is unmatched in the railroad industry.

Quick-drying aluminum paints using Alcoa Pigments leaf and show no shadows. Ease of application permits faster and more economical painting operations.

Stations of Alcoa Aluminum architectural products

Alcoa Aluminum brings new, enduring beauty to exteriors of railroad stations when used for decorative grilles, spandrels, windows, doors, and roofing. Ornamental work, wall panels, grilles, handrails, and telephone booths made of Alcoa Aluminum retain their original freshness and charm. Ramp and stair railings of Alcoa Aluminum are attractive and practical. They require but little care to keep them bright and clean.





YOU

I. Rolling stock

A. Passenger Cars

1. Entire Superstructure
   - Side Sills
   - Side Plates
   - Side Posts
   - Carlines
   - Belt Rails
   - Purlins
   - Rivets
   - Body & Platform End Posts
   - Window Headers
   - Side, Roof & Body End Sheets
   - Flooring, Main & Sub
2. Interior Finish
   - Lining
   - Decorative Moldings
   - Doors
   - Door Frames
   - Partitions
   - Window Sash
   - Electrical Conduit
   - Rivets & Screws
   - Baggage Racks
   - Mirror Frames
   - Air-Conditioning Ducts, Etc.
   - Lighting Fixtures
   - Foil Insulation
   - Hardware
   - Curtain Guides
   - Seat Frames
   - Berths
   - Stanchions, Handrails

B. Freight Cars

1. House Cars such as Box & Refrigerator
   - Side Sills
   - Posts
   - Floor Stringers
   - Center Sills
   - Side Plates
   - Side Sheets
   - Ends
   - Roofs
   - Running Boards
   - Brake Steps
   - Ladder Frames
   - Doors
   - Journal Box Lids
2. Hopper Cars
   - Side Sills
   - Side Plates
   - Side & End Posts
   - Side, End & Floor Plates
   - Bolsters
   - Center Sills
   - Ladder Frames
   - Slope Sheets
   - Cross Ridge Sheets
   - Longitudinal Hoods
   - Hopper Doors & Frames
   - Hopper Sheets
3. Tank Car Tanks
   - Tank Plates
   - Manhole Covers
   - Valves
   - Tank Anchors
   - Heater Coils
   - Tank Jacket Sheets
   - Piping

C. Locomotives

1. Electric & Diesel Electric
   - Side Sheets
   - Roof Sheets
   - Posts
   - Carlines
   - Window Frames & Sash
   - Doors & Frames
   - Electrical Conduit
   - Covers
   - Cylinder Heads
   - Pistons
   - Blowers & Air Ducts
   - Piping
   - Crankcase
   - Oil Pan
   - Bearings
   - Fuel Filters
   - Supercharger Housing
   - Pumps
   - Turbocharger Impellers
   - Air Filters
   - Manifolds
   - Governor Housing
   - Tanks
   - Wire & Cable
   - Junction Boxes

D. L. C. L. Containers

HERE ARE THE PLACES CAN USE THESE PRODUCTS OF 67 YEARS OF PIONEERING IN ALUMINUM

II. Maintenance of way and engineering

A. Bridges

1. Bridge Structure
2. Bridge Railing & Grating
3. Blastplates

B. Buildings (Aluminum Applications such as Siding, Window Sash, Roofs, Doors, Ornamental & Trim Features, Ventilation Ducts)

1. Passenger Stations
2. Freight Stations
3. Train Sheds
4. Station Canopies & Shelters
5. Warehouses
6. Office Buildings
7. Switchmen's Shanties
8. Crossing Watchmen's Shanties
9. Bridge Tenders' Shanties
10. Repair Shops
11. Service Buildings
12. Oil Houses
13. Pump Houses
14. Section Tool House
15. Outside Privies
16. Wayside Telephone Booths
17. Road Gang Trailers
18. Miscellaneous Types

C. Signals

1. Wire & Cable (ACSR)
2. Equipment Cases
3. Crossing Gate Arms
4. Rail Bonds

D. Signs

1. Crossbucks
2. Speed
3. Milepost
4. Whistle
5. Bridge Markers
6. Special Purpose

E. Inspection & Transportation Cars

F. Fences

G. Floor Plate & Grating

H. Paint for Use Anywhere

I. Pneumatic Tube Systems

J. Jacks, Car & Track

K. Hoists

L. Jigs & Fixtures

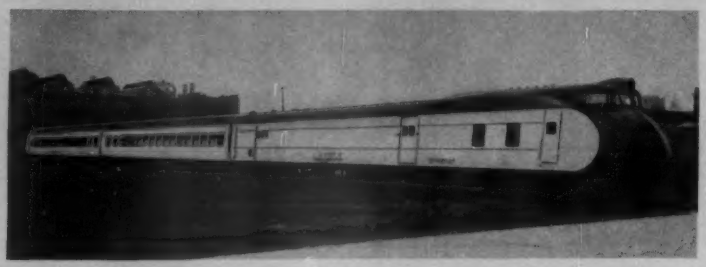
M. Ladders

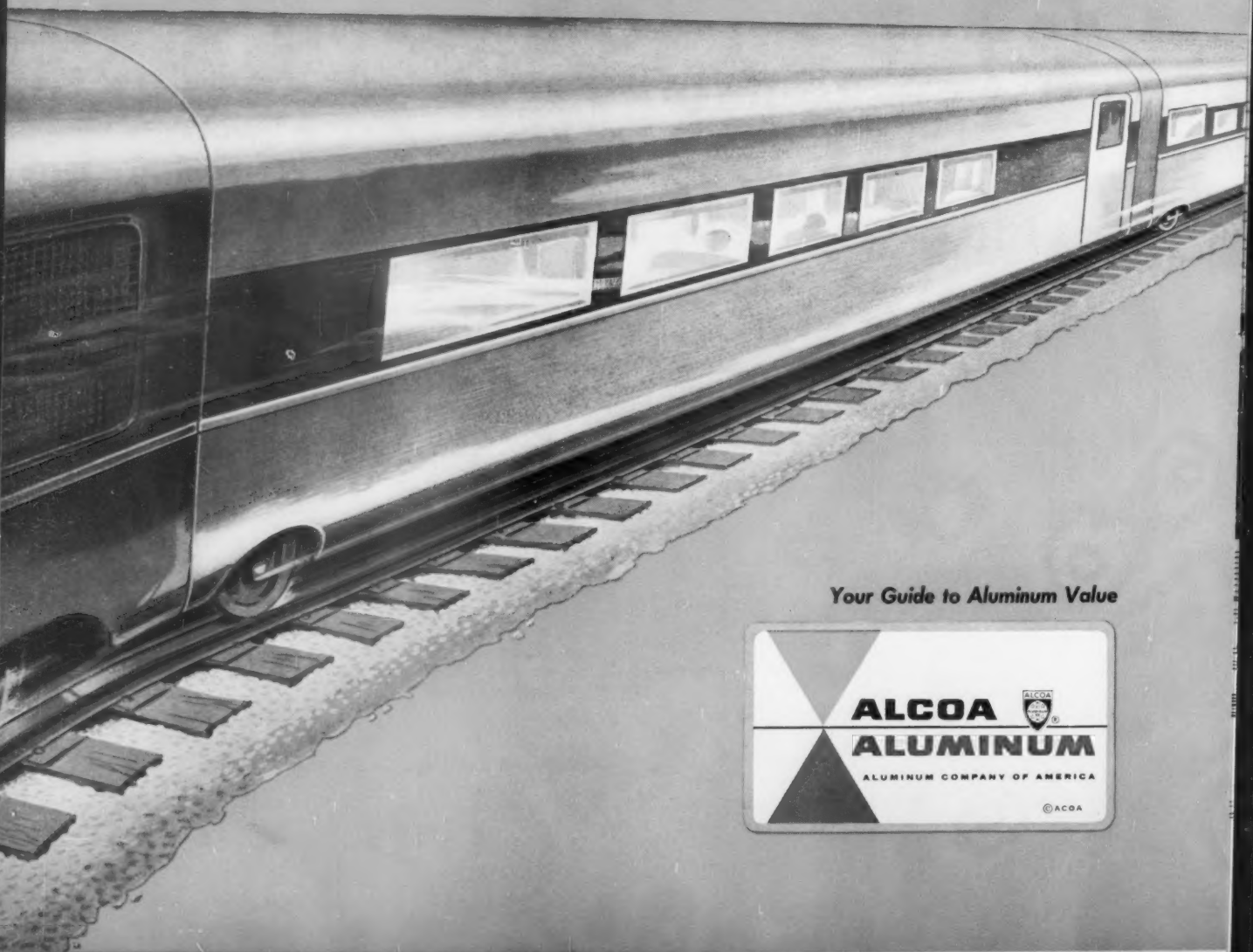
N. Scaffolds

O. Dock Boards

ON THE TRACK WITH ALCOA® ALUMINUM

In 1934, Pullman Standard relied on Alcoa for aluminum to build the Union Pacific's "City of Salina", first of all lightweight streamliners. Today, the practical economics of lightweight, streamlined equipment have been proved by millions of miles of service. Pullman Standard is now concentrating its skills on construction of a still newer concept of high-speed, lightweight passenger trains. And again, Alcoa Aluminum is being utilized to help build traffic, reduce operating costs and retain more of gross revenues. For complete information on Alcoa's Research and Development facilities, call your local Alcoa sales office or write: ALUMINUM COMPANY OF AMERICA, 2180-F Alcoa Building, Pittsburgh 19, Pa.





Your Guide to Aluminum Value

ALCOA® ALUMINUM

ALUMINUM COMPANY OF AMERICA

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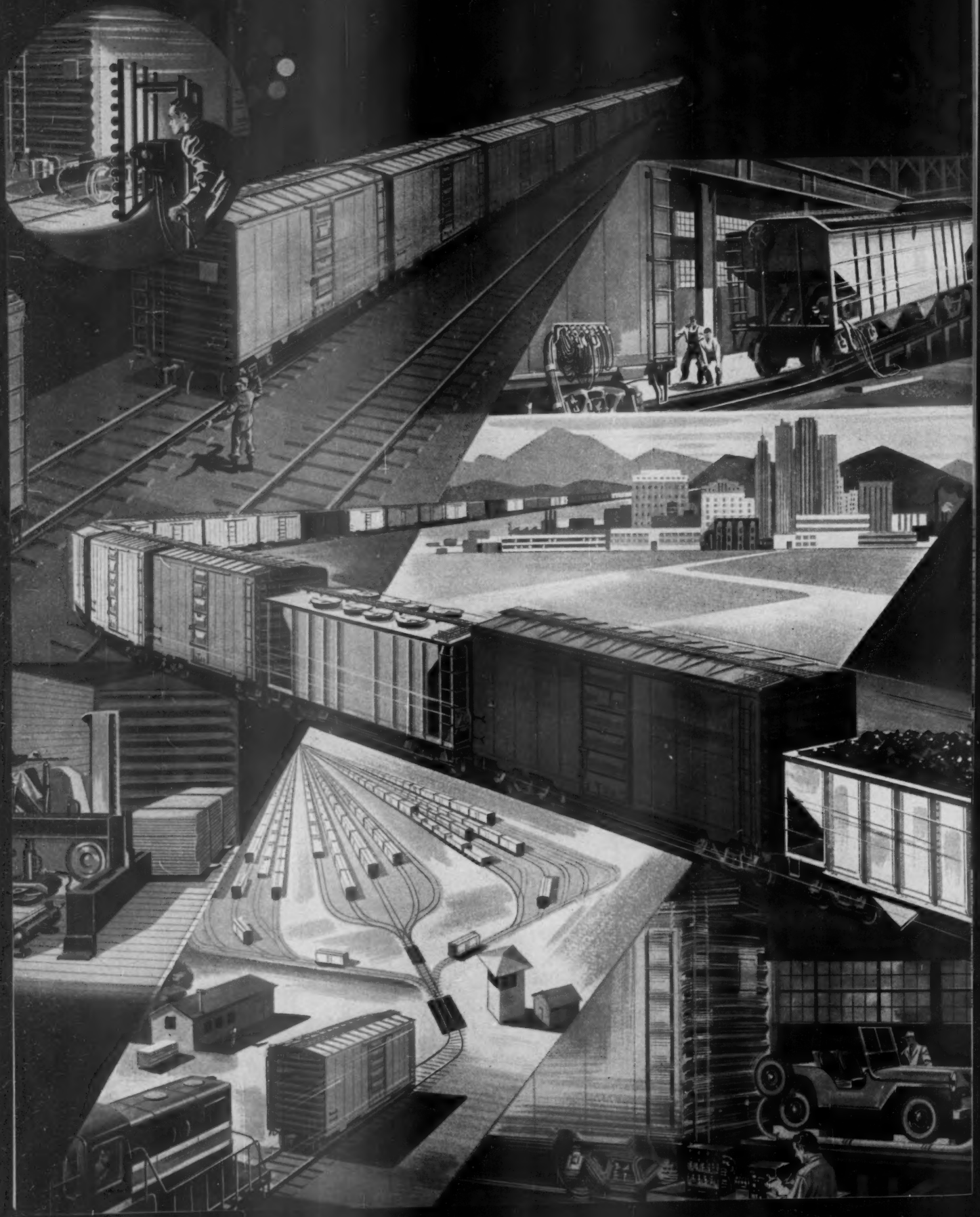
Stamina and economy are born



in a laboratory reproduction

of the

GREAT AMERICAN RAILWAY
System

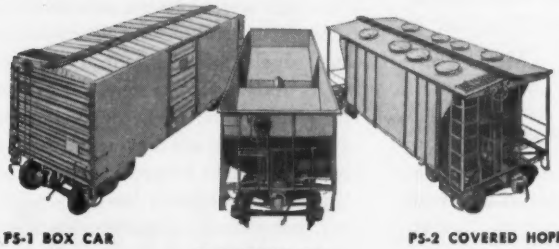
You could, simply by standing in Pullman-Standard's Research and Development Laboratory, give a blow by blow account of the daily life of a freight car operating anywhere on the Great American Railway System.* For here are reproduced the forces created by switching and humping, the vibrations caused by oscillating and shaking and the stresses traceable to heavy loads and shifting ladings.

These and other destructive effects of normal operation are measured by scores of scientific devices such as strain gauges, ocillographs and high speed movie cameras. It is only by means of such data that the clues to design problems can be found, that the cost and weight penalties of construction which exceeds a reasonable safety factor can be avoided.

The stamina and life-time economy of the PS-1 Box Car were created in the laboratory. And the "on line" inspection of representative numbers of the 57,000 now in use, verifies it. The PS-2 Covered Hopper and the PS-3 Hopper Car also have designed- and built-in stamina balanced with economy, as a result of this laboratory reproduction of operating conditions. All three are quality cars built to earn more ton miles of revenue at lower cost per year of service, wherever they are sent.

*A typical box car moves, in one year, on 39 different roads, including two or more trips on 24 roads. (A. A. R. data)

Built to serve best on the
GREAT AMERICAN RAILWAY SYSTEM



PS-1 BOX CAR

PS-3 HOPPER CAR

PS-2 COVERED HOPPER

YOUR NEEDS CREATE THE PULLMAN "STANDARD"

PULLMAN-STANDARD

CAR MANUFACTURING COMPANY
SUBSIDIARY OF PULLMAN INCORPORATED
79 EAST ADAMS STREET, CHICAGO 3, ILLINOIS
BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON

Tomorrow's Car-Heating Is Here Today!

...READY FOR THE NEW LIGHTWEIGHT TRAINS

(Reading Time: 2 min. 20 sec.)

Few railroad happenings in recent years have so stirred the imagination as does the impending introduction of the long-heralded new lightweight trains. Here, indeed, is a challenge to modern ingenuity . . . a new responsibility placed upon experienced designers . . . an opportunity which enabled Vapor engineers to develop a remarkably simple and wholly new concept of versatile, low-cost and lightweight car heating.

USES ENERGY OTHERWISE WASTED

That portion of the current from the power-car which is used to operate air conditioners, fans, and other warm-weather accessories, is diverted by this new Vapor development to provide car-heating during cold weather. Thus, with no added load on the generators, and merely by using available energy, cars can be comfortably heated in outside temperatures as low as 10°-20° above zero—probably representing up to 90% of normal heat-time requirements.

COMFORT AND SAFETY IN COLDEST WEATHER

When car-heating demand reaches pre-established maximum draw on the power-car generators, a Vapor Watchman Heater comes on automatically to augment the circulating hot liquid. This provides continuing passenger comfort, whatever the outside weather. Each car has its own compact, oil-fired Watchman, and thus, also, is equipped ideally for automatic plug-in "layover" and emergency heating.

NEW VAPOR SYSTEMS ARE VERSATILE

One arrangement utilizes heated liquid in the newly developed Vapor Electro-Unit Radiation—finned-tube with a continuous heating-cable core surrounded by circulating heating medium. This circulating liquid is heated by the electrical core, by the oil-fired Watchman Heater, or by any combination of both. Hot spots and localized intensity of heat, which previously have been objectionable features of electric heating, are eliminated by the uniform comfort of Electro-Unit Radiation.

In another arrangement, heat from the liquid is delivered to the car by circulating air. In both systems, a Vapor Modulating Thermostat accurately controls car temperatures during heating and cooling. All parts are simple, lightweight, and ruggedly designed for demanding Railroad service.

SAVINGS ARE ASSURED

With full automatic controls, which include the new 5 1/16" x 7" x 3" Vapor "Unipanel," new Vapor heating for lightweight trains achieves every objective—*low first-cost . . . low operating cost . . . light weight . . . simplicity . . . dependability . . . convenient, easy maintenance.* Electro-Unit Radiation is the first great advance in electric heat distribution in the field of transportation. And the combination of electric and "Watchman" heat provides the most simple, most versatile car-heating system ever devised.

A PRODUCT OF SPECIALIZED PROGRESS

New lightweight trains add many opportunities to improve specialized transportation-heating. Variations in sun, shade, wind; proximity of passengers to outside walls and windows; long, narrow areas; unpredictable passenger preferences; quick changes in outside temperatures, etc., all are met successfully by this latest Vapor contribution to progress. Long Vapor experience in all types of mass-travel heating—railroad, aircraft, street car, bus—precedes and backs unquestioned durability and outstanding performance.

VAPOR HEATING CORPORATION

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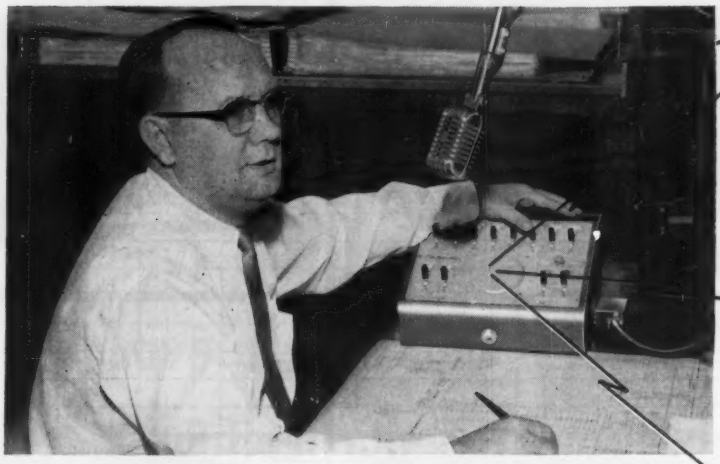
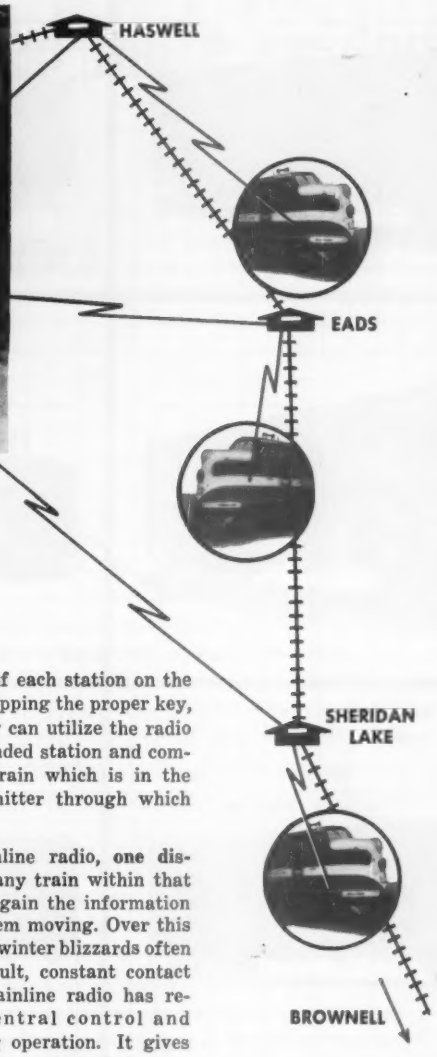
IN CANADA: Vapor Car Heating Co. of Canada, Ltd., 65 Dalhousie St., Montreal 3

Vapor Export Corporation • Vapor International Corporation, Ltd., Room 1400, Railway Exchange Bldg., Chicago 4, Ill.

NOW Missouri Pacific dispatcher can talk to trains through unattended stations



PUEBLO DISPATCHER covers 280 mile stretch at the flip of a key.



with MOTOROLA

MAINLINE RADIO

The chief dispatcher of the Colorado Division of the "Mo Pac." is always on the spot, because this division is the important "bridge" linking the eastern segment of the system with connections to and from the west.

To help improve operations on this busy division, the new electronic development, Motorola Mainline radio, is in force from Pueblo to Brownell, Kansas. Eight stations along the line are 2-way radio equipped and manned by operators during the day.

However, when these operators are out to lunch, or the stations are closed for the night, the chief dispatcher takes over with **new Mainline radio.**

Located in Pueblo, he has a number of keys at his fingertips, each one connected to the radio system of each station on the division. Simply by flipping the proper key, the Pueblo dispatcher can utilize the radio system of the unattended station and communicate with **any** train which is in the radius of the transmitter through which he is calling.

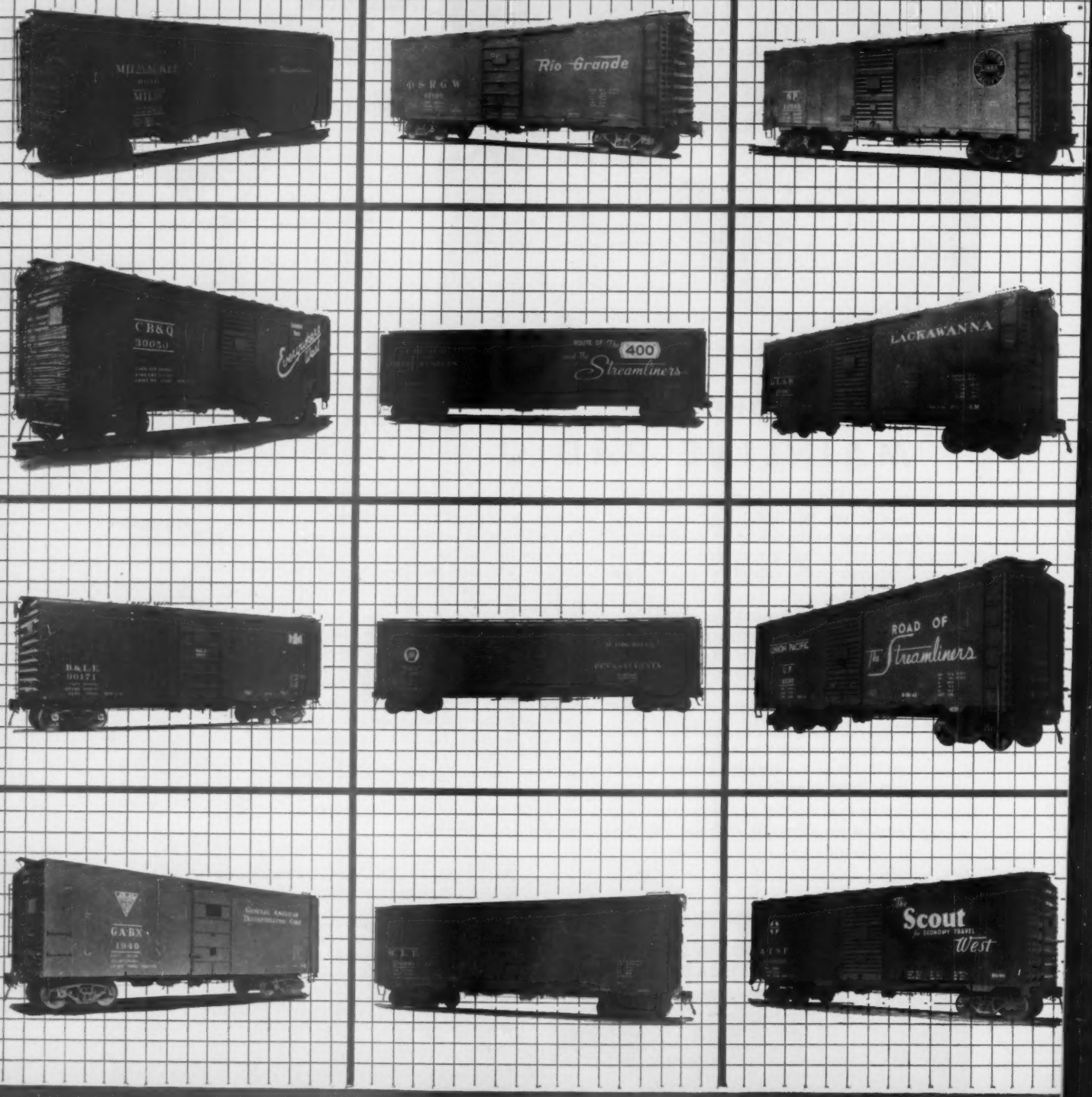
With Motorola Mainline radio, **one dispatcher** can contact any train within that 280 mile stretch and gain the information he desires to keep them moving. Over this rolling terrain, where winter blizzards often make operation difficult, constant contact through Motorola Mainline radio has resulted in better central control and smoother, cost-saving operation. It gives the dispatcher complete control of the system at all times and takes the guesswork out of train dispatching.

Motorola
2-WAY RAILROAD RADIO

Motorola Communications & Electronics, Inc.
A SUBSIDIARY OF MOTOROLA, INC.
4501 AUGUSTA BOULEVARD, CHICAGO 51, ILLINOIS
ROGERS MAJESTIC ELECTRONICS LTD., TORONTO, CANADA

Motorola consistently supplies more mobile radio than all others.
Proof of acceptance, experience and quality.
The only COMPLETE radio communications service—specialized engineering . . . product . . . customer service . . . parts . . . installation . . . maintenance . . . finance . . . lease.
"The best costs you less—specify Motorola"

85,000 box cars have been built *better*



USS HIGH STRENGTH STEEL

with USS COR-TEN Steel since 1933

These box cars have carried more payload

- have cost less to operate
- have cost less for maintenance
- have proved their ability to outlast other construction

AT THE PRESENT TIME, more than 33,000 box cars built with USS COR-TEN Steel have been in service for ten years or longer. During that period they have thoroughly demonstrated two things. First, that the economies they make possible outweigh, by far, the slight extra cost of COR-TEN Steel construction. And, second, they have shown that reasonable weight reduction with COR-TEN Steel does not involve any reduction in stamina, life or serviceability.

These facts have not been overlooked by the railroad industry. For it is on the basis of *proved superior performance*, that those railroads which lead in ownership of COR-TEN-built equipment, have through the years added more and more of such cars to their lines.

Take the Southern Pacific for example. This railroad commenced using COR-TEN Steel in 1946. Now has 20,350 box and auto-box cars using COR-TEN in service —enough to make a train 176 miles long. Most of these cars were ordered after the original equipment had proved the merits of COR-TEN Steel construction.

The Union Pacific is another long-time user of COR-TEN Steel box cars. Since 1937 when the first order was placed, fourteen successive orders have brought the total of COR-TEN Steel box cars in U.P. service to 17,080, many of them built in their own shops.

The Milwaukee Road has used COR-TEN Steel in 14,060 box cars built from 1936 to 1949. The C.B.&Q. has used COR-TEN Steel in 10,700 box cars, the Great Northern in 5500, and the Pennsylvania in 2600.

Also enjoying the economic benefits of COR-TEN Steel construction are the Rio Grande, the Santa Fe, the Chicago and North Western, the Lackawanna, and other leading roads which, like all operators of freight equipment, are careful to invest their dollars where they know they will get the biggest return on their money.

We can think of no better reason than this for suggesting that you too investigate the *cost-reducing and revenue-increasing* advantages of USS COR-TEN Steel construction. We will be glad to discuss this matter with you anytime at your convenience.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS HIGH STRENGTH STEELS
UNITED STATES STEEL
TWENTY YEARS OF PERFORMANCE

See THE UNITED STATES STEEL HOUR. Televised alternate weeks. Consult your newspaper for time and station.

UNITED STATES STEEL

New G-E axle-driven generators give the extra power, reliability for long, trouble-free

General Electric's new GMG-162 axle-driven motor generator has over twenty-five percent more reserve power than competitive equipment. Here's what that means:

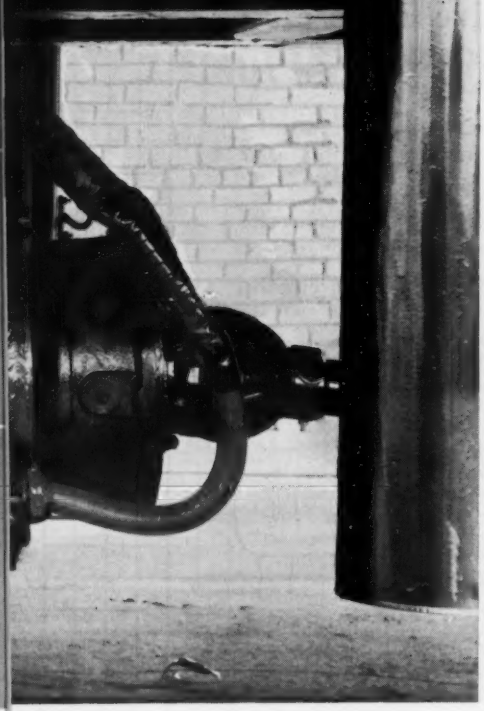
1. Better battery record. There is enough power available to charge low batteries while the car is in operation. Therefore, fewer standby rechargings are required.

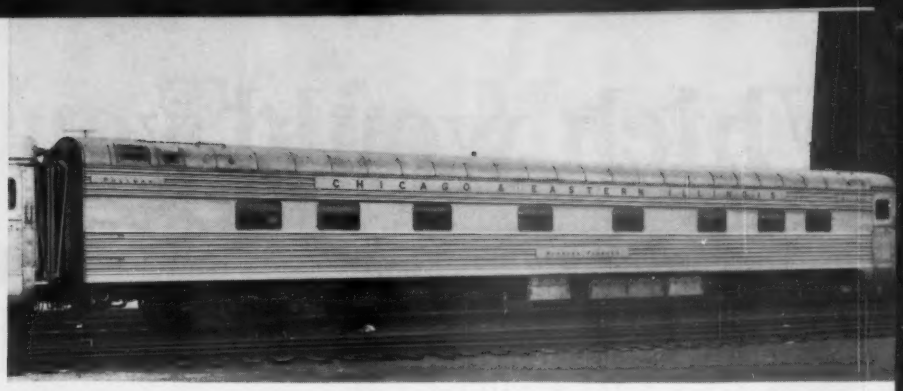
2. Should axle generators in other cars become inoperative, increased demand can be met effectively. In a recent test simulating emergency conditions, load requirements of four modern air-conditioned passenger cars were supported by *one* GMG-162.

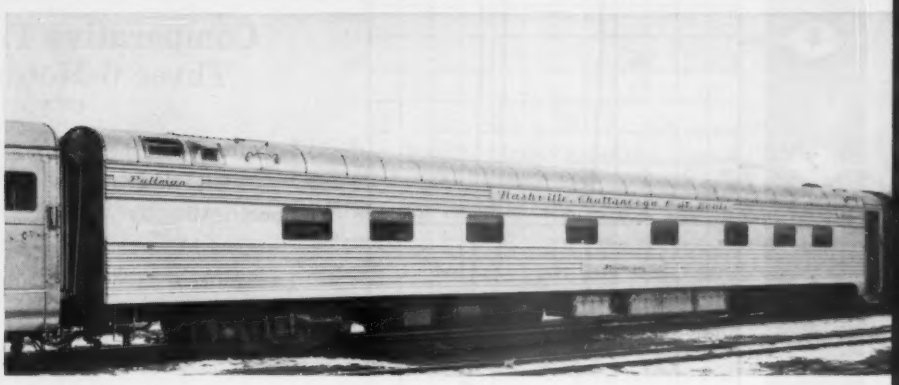
In addition, General Electric's GMG-162 has a highly simplified control system, uses only two control panels, eliminates armature reversing switch and reduces number of moving parts. It is easy to install and to maintain. For more information contact your G-E Apparatus Sales representative. General Electric Company, Locomotive and Car Equipment Department, Erie, Pa. 115-5A

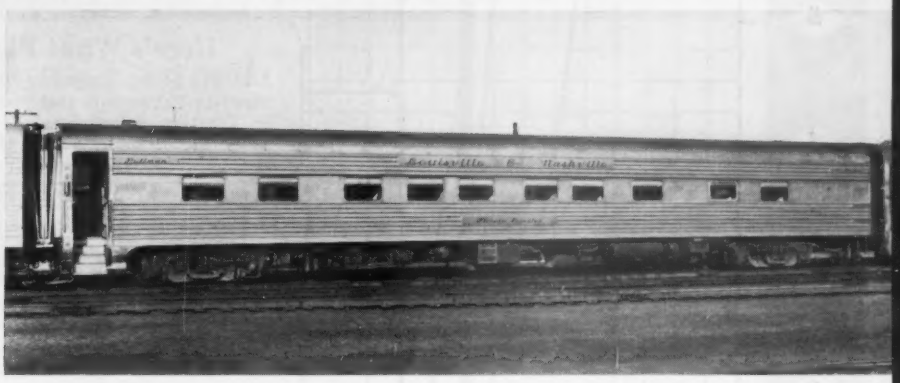
Progress Is Our Most Important Product

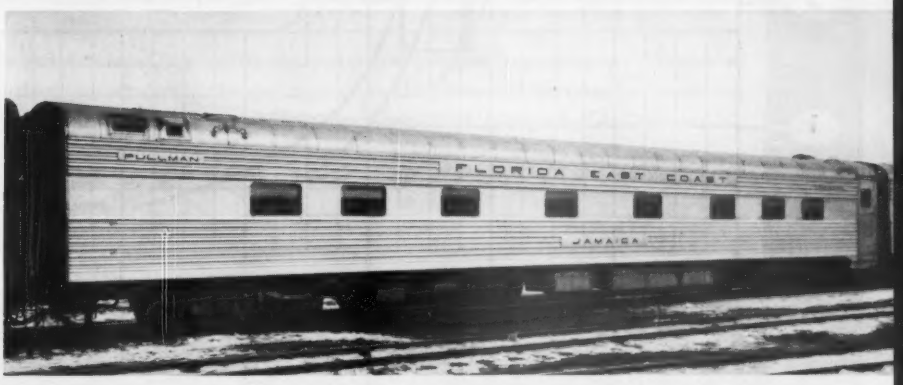
GENERAL ELECTRIC







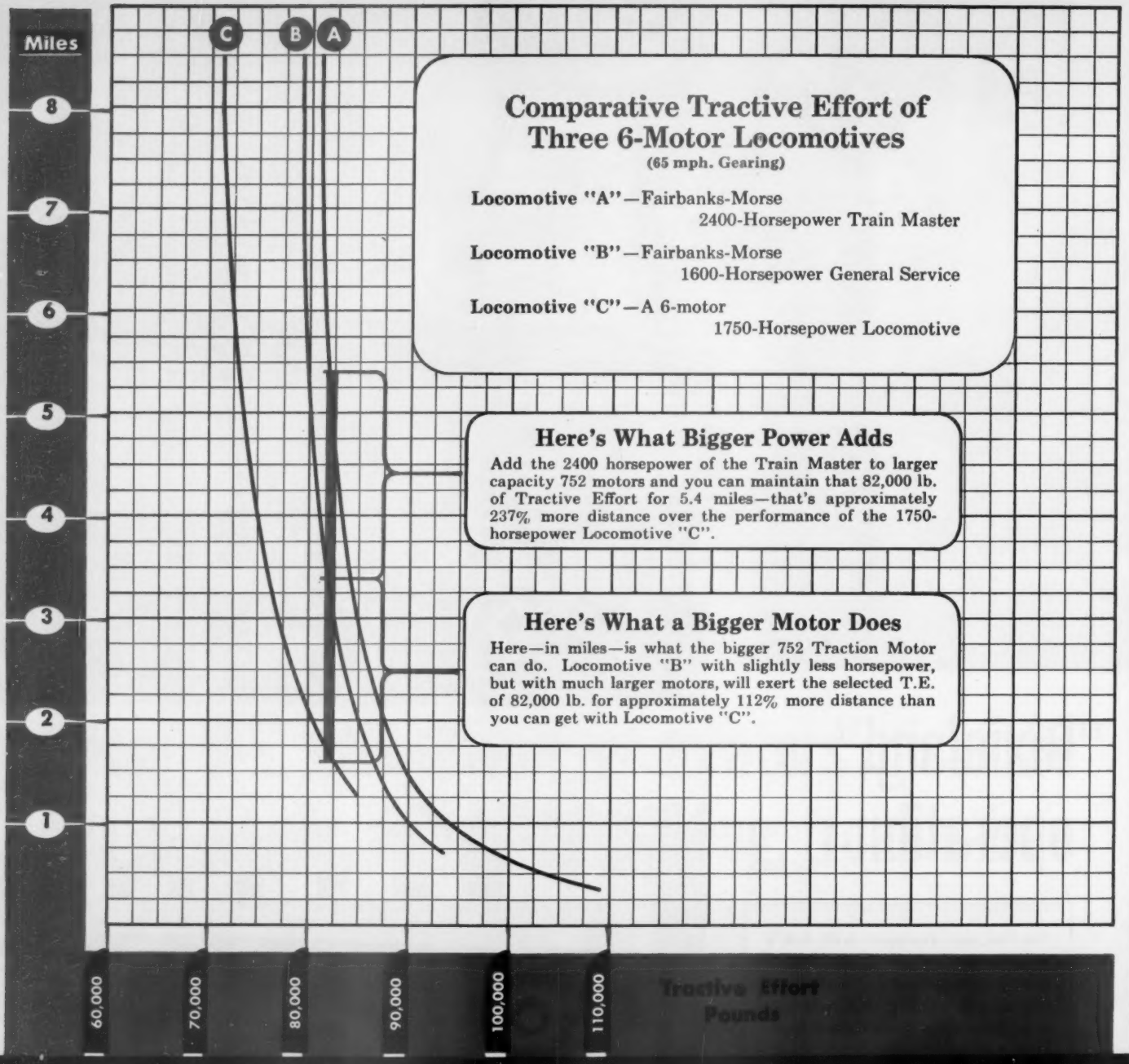




"Dixieland" operation

The first cars equipped with G.E.'s new GMG-162 were delivered to the Canadian National and Rock Island railroads in 1954. In the short time since then, orders have been received from: Atlantic Coast Line, Nashville, Chattanooga and St. Louis, Chicago and Eastern Illinois, Florida East Coast, Louisville and Nashville.

Which would you choose to



Comparative Tractive Effort of Three 6-Motor Locomotives

(65 mph. Gearing)

Locomotive "A"—Fairbanks-Morse
2400-Horsepower Train Master

Locomotive "B"—Fairbanks-Morse
1600-Horsepower General Service

Locomotive "C"—A 6-motor
1750-Horsepower Locomotive

Here's What Bigger Power Adds

Add the 2400 horsepower of the Train Master to larger capacity 752 motors and you can maintain that 82,000 lb. of Tractive Effort for 5.4 miles—that's approximately 237% more distance over the performance of the 1750-horsepower Locomotive "C".

Here's What a Bigger Motor Does

Here—in miles—is what the bigger 752 Traction Motor can do. Locomotive "B" with slightly less horsepower, but with much larger motors, will exert the selected T.E. of 82,000 lb. for approximately 112% more distance than you can get with Locomotive "C".

BIGGER TRACTION MOTOR CAPACITY

BIGGER HORSEPOWER

MAKE TRAIN MASTER YOUR SOUNDEST MOTIVE POWER BUY

do with your Train Masters?

1 Haul More Tonnage?

According to the chart, if you were using Locomotive "C" on a 5-mile ruling grade, its 1750-horsepower and smaller traction motor capacity would rate a Tractive Effort of about 73,300 lb.

Put your Train Master on that same hill. Locomotive "C" would need help over the grade to meet tonnage ratings set by the Train Master, for the TM's larger horsepower and greater traction motor capacity would rate a T.E. of 82,600 lb. for the distance.

Use your Train Master power this way and you will haul up to 15% more tonnage than with Locomotive "C", at rated traction motor temperatures.

This superiority of the Train Master is analogous to the superiority of diesel-electrics generally over the steam locomotive.

2 Haul Same Tonnage—Faster?

On that same 5-mile hill, you might elect to keep the tonnage ratings set by Locomotive "C". Your 2400-horsepower Train Master would haul the same tonnage over the grade—faster.

The longer the hill, the greater the performance differential in favor of the Train Master.

If this option of operation were your choice, you would be running the bigger capacity 752 motors of the Train Master at much lower temperatures than on Locomotive "C". These lower operating temperatures will result in longer motor life, typical of habits of electrical insulation.

Either Way

. . . Train Master's greater traction motor capacity and greater horsepower give you greater motive power performance than any other 6-motor locomotive. Fairbanks, Morse & Co., 600 South Michigan Avenue., Chicago 5, Ill.

FAIRBANKS-MORSE

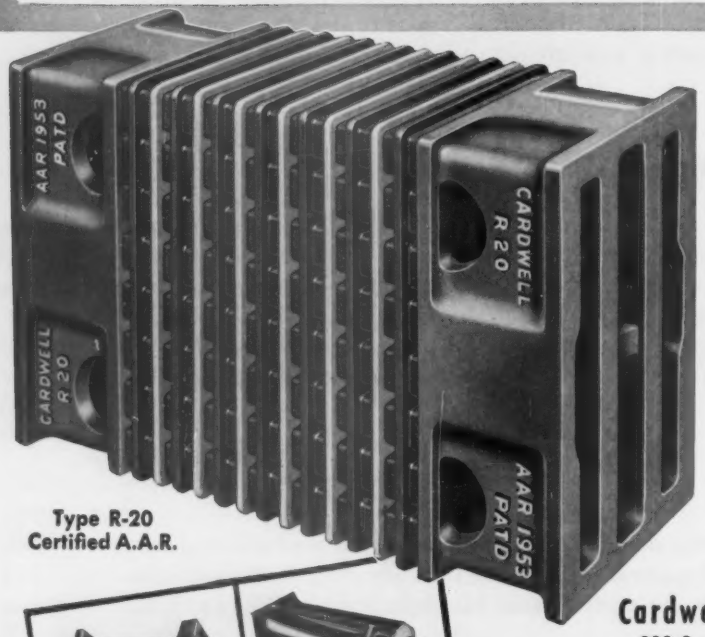
a name worth remembering when you want the best

DIESEL LOCOMOTIVES AND ENGINES • RAIL CARS AND RAILROAD EQUIPMENT •
ELECTRICAL MACHINERY • PUMPS • SCALES • WATER SERVICE EQUIPMENT • MAGNETOS

☆ *Surpassing A. A. R. requirements*

☆ *Supplementing the Cardwell Westinghouse line...*

the NEW CARDWELL
RUBBER DRAFT GEAR



Type R-20 Certified A.A.R.

Cardwell Westinghouse introduces the R-20 *Rubber* Draft Gear for freight service . . . now CERTIFIED A.A.R.! It exceeded by gratifying margins all A.A.R. requirements for capacity, endurance and sturdiness.

Now Cardwell Westinghouse offers highly efficient, impact-absorbing draft gears of both types... *friction* and *rubber!* The R-20 supplements the line as Cardwell Westinghouse continues to supply its customers' demands for sturdy equipment.

Completely interchangeable! The R-20 fits the standard 24⅝" pocket, in combination with two 2¼" followers per gear. Send today for special R-20 catalog.

Cardwell Westinghouse Co.
332 S. Michigan Ave., Chicago 4, Illinois
Canadian Cardwell Co. Ltd., Montreal

Cardwell V-18 Friction Draft Gear
Westinghouse Friction Draft Gear
Cardwell M-25 Friction Draft Gear
Cardwell Friction Bolster Spring

Specify
CARDWELL
WESTINGHOUSE

NIPS UP THE TIE AGAINST THE RAILS

...Drives four spikes!

RMC SPIKE Master

With an operating speed of better than two ties per minute, SpikeMaster drives four spikes—one on either side of both rails.

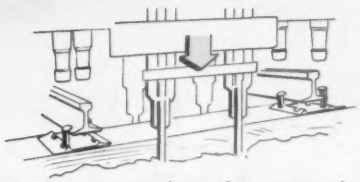
Machine is suitable for tie replacement or laying new rails. It is adjustable for driving either rail or anchor spikes on all tie plates. It can be used with pre-bored or non-bored ties. A hydraulic ram turntable enables operator to lift the machine, turn it and remove it from track.

Ask for Bulletin S-55

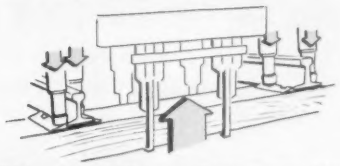
Railway Maintenance Corporation

Box 1888 Pittsburgh 30, Pa.

Designers and manufacturers of:
McWilliams Mole, Super Mole . . . McWilliams Tie Tamper, Crib Cleaner, Ballast Distributor . . . TieMaster . . . LineMaster . . . SpikeMaster



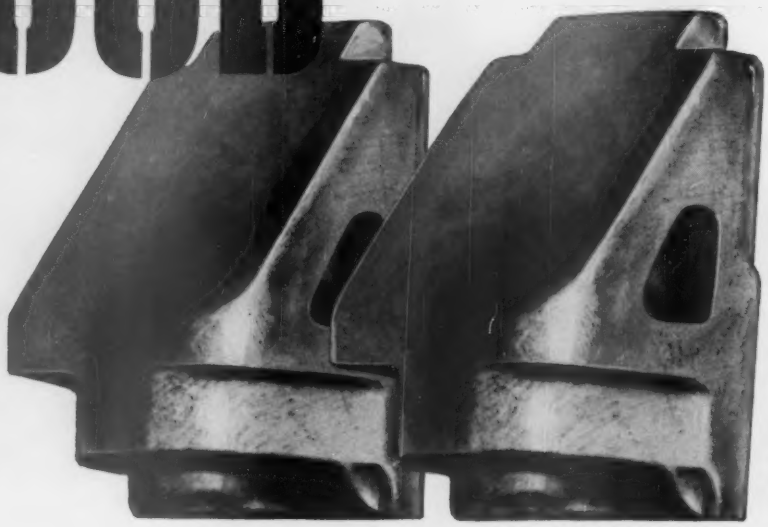
Nipping tongs are lowered to engage tie and raise it square with the rails.



With tongs holding tie, driving guns drive spikes on either side of both rails.

Machine with one set of driving guns operating, the other in travel position. Both sets of guns operate simultaneously if desired.

GOOD



These are Barber special-alloy friction shoes.

FOR HALF A MILLION MILES . . .

. . . OR MORE!

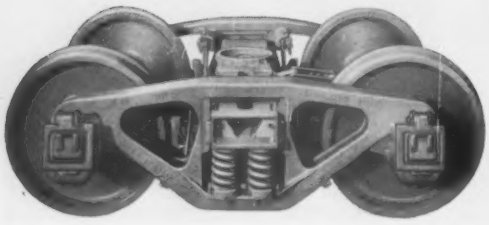
Then after 14 or 15 years of hard service, inspect the friction shoes of a Barber Stabilized Truck.

Any friction device should wear if it is operating properly. No *friction* means no *wear* . . . no shock-absorbing action. Knowing this, Barber has researched and tested the all-important friction-bearing surfaces of these shoes for many years. They are made to provide the longest possible service life consistent with the positive action that protects your ladings.

Occasionally a Barber Truck should have new shoes. Replacement is simple, quick and inexpensive in this, the easiest of all trucks to dismantle and service. Then at very small cost you will have completely restored the useful life and smooth-riding action of the Barber Truck for another half a million miles!

Specify Smoother-Riding

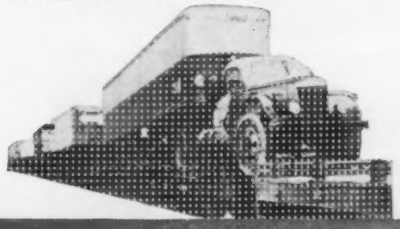
BARBER
STABILIZED TRUCKS



Standard Car Truck Company, 332 S. Michigan Ave., Chicago 4, Illinois. *In Canada:* Consolidated Equipment Co., Ltd., Montreal 2.

AGAIN

AGAIN



AGAIN

INTERNATIONAL STEEL'S PRECISION CONSTRUCTION PROVIDES A SPECIAL PURPOSE CAR AT LOWER COST!

A precision-built pulpwood car . . . one of an order for the BOSTON AND MAINE. All-welded bulkheads—and the famous all-welded *International* underframe. *This car cost less to build than it would have cost to rebuild an old car!*

AGAIN

AGAIN

International's *corrective design* has proved itself . . . engineering and construction that still has a history of NO failures!

NOW! Look for remarkable *new* freight car developments from International through "functional design". Aggressive development that is producing a new concept in lading handling and stowage for the railroads and shippers!

INTERNATIONAL STEEL COMPANY
EVANSVILLE 7, INDIANA
RAILWAY DIVISION

"Detecting and replacing defective rails is of prime importance to our operation's safety and economy," states Mr. A. B. Chaney, Assistant Chief Engineer, System Maintenance, Missouri Pacific Lines. "That's why we have used Sperry Rail Service to test Missouri Pacific rail in track since 1931."

This stretch of track near Knobnoster, Mo., lies on the route of the original Pacific Railroad of Missouri, forerunner of present day Missouri Pacific Lines and the first railroad constructed west of the Mississippi River. "Testing frequency of this and other track varies from four to twelve months," Mr. Chaney continues, "depending on density and class of traffic, age and condition of rail, and record of detected and service failures."

MISSOURI PACIFIC LINES

Get high track safety at low cost with SPERRY RAIL SERVICE

The Colorado Eagle, Mo-Pac's crack overnight streamliner between St. Louis and Colorado points, speeds through scenic Rocky Mountain territory. With delivery early this year of 66 new diesel road switchers, Missouri Pacific has completed dieselization of its far-flung 10,000-mile system. Radio and CTC, centralized checking for LCL freight, broad line and grade revision, new freight cars and modernized diesel facilities are placing Mo-Pac in a strong position to handle increased carloadings with speed and safety.

"Good teamwork is the rule and gets economical results," says Mr. Chaney. "Test itinerary for a coming year is set up in December and distributed to all personnel concerned. During test operations, daily movements of the Detector Car are coordinated by a Mo-Pac representative riding with the Sperry crew." Constant efforts by Sperry engineering and operating staffs to improve equipment and methods have resulted in greater testing efficiency than ever before.

Sperry

FIRST IN RAIL TESTING

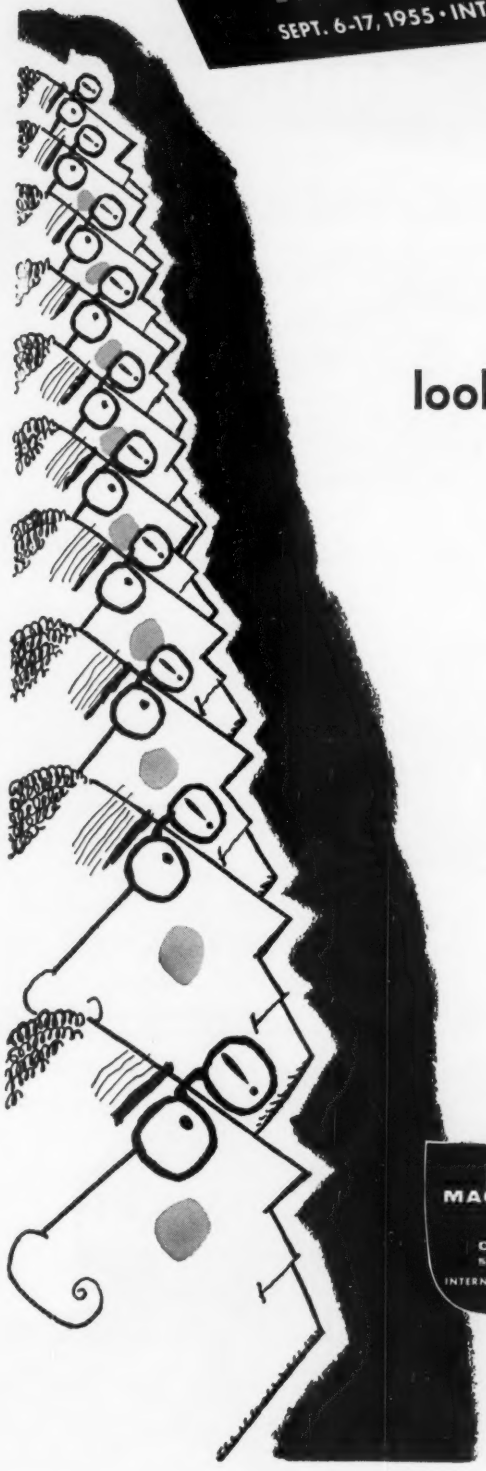
SPERRY RAIL SERVICE

Division of Sperry Products, Inc.
Danbury, Conn.
New York Chicago St. Louis

Since 1928, Sperry has pioneered the field of practical nondestructive testing. Today, Sperry service offers America's most complete range of modern ultrasonic and induction instruments for testing rail, rolling stock and stationary equipment . . . time-proved assets to maintenance economy. Write or call for complete information and a working demonstration today.

The Machine Tool Show

SEPT. 6-17, 1955 • INTERNATIONAL AMPHITHEATRE • CHICAGO, ILL.



12,291*
Purchasing Agents
looking for greater values!

Where will they look? At the Machine Tool Show, in Chicago, in September, of course. Better plan to be there, too! There you'll see **the world's best investment**—***in action!***

Not since 1947 have so many manufacturers assembled so many new models, all under one roof, ready to demonstrate to you their fastest, most ingenious, most economical production methods. More than ninety per cent of the country's leading machine tool builders will be on hand.

Will you?

You'll not only see the latest in machine tools, you'll see the latest in machine tool accessories as well—two shows for the price of one: the Machine Tool Show, at the International Amphitheatre, and the Production Engineering Show, on the Navy Pier. Your Machine Tool Show badge will admit you to both.

Bring your key buyers of metalworking equipment with you; share with them this unequaled opportunity to see comparative demonstrations of the latest in cost-cutting methods—at the 1955 Machine Tool Show, your guide to greater values.

NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION
2071 East 102 Street • Cleveland 6, Ohio

*** ESTIMATED ATTENDANCE, BEFORE RECEIVING *YOUR* RESERVATION**

New, *Luxurious* Astra-Dome Cars

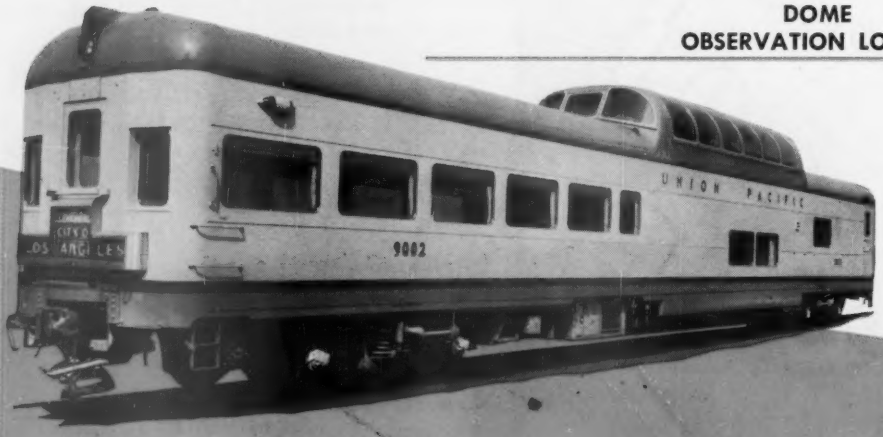
all equipped with

Commonwealth

DOME COACH

DOME DINER

DOME
OBSERVATION LOUNGE



Built by ACF
Industries, Inc..
St. Charles, Mo., Plant

GENERAL STEEL

for the UNION PACIFIC *Domeliners*

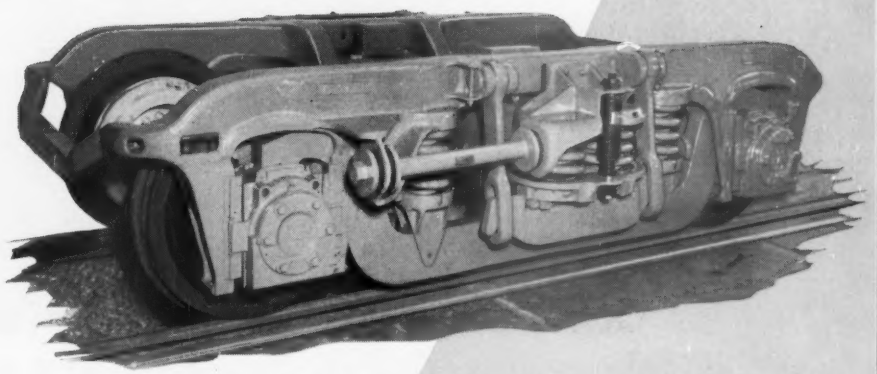
Outside Swing Hanger Type Trucks

and Underframe End Castings

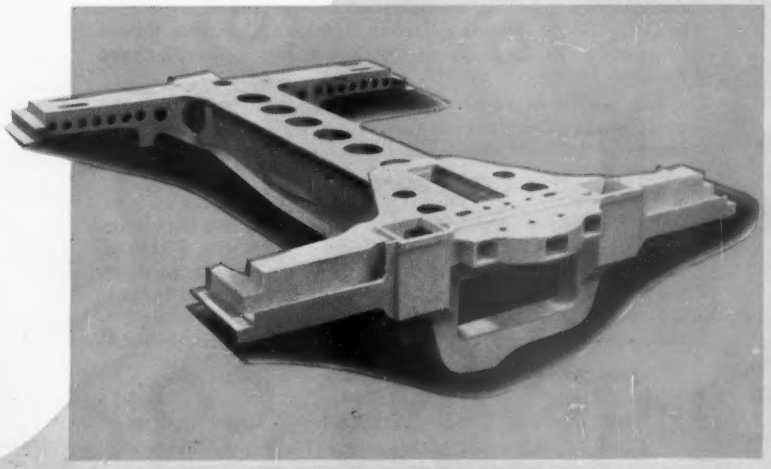
To assure maximum riding comfort, new Domeliner trains on the Union Pacific feature Commonwealth *Outside Swing Hanger Trucks* with *Central Bearings*. These latest type trucks not only provide smooth riding but simplify inspection and greatly reduce maintenance expense.

Strong, one-piece cast steel underframe end castings with integral body bolsters and end sills provide exceptional strength and passenger safety, and eliminate maintenance.

Passenger traffic is attracted by the most modern equipment. For your new cars, specify Commonwealth Products.



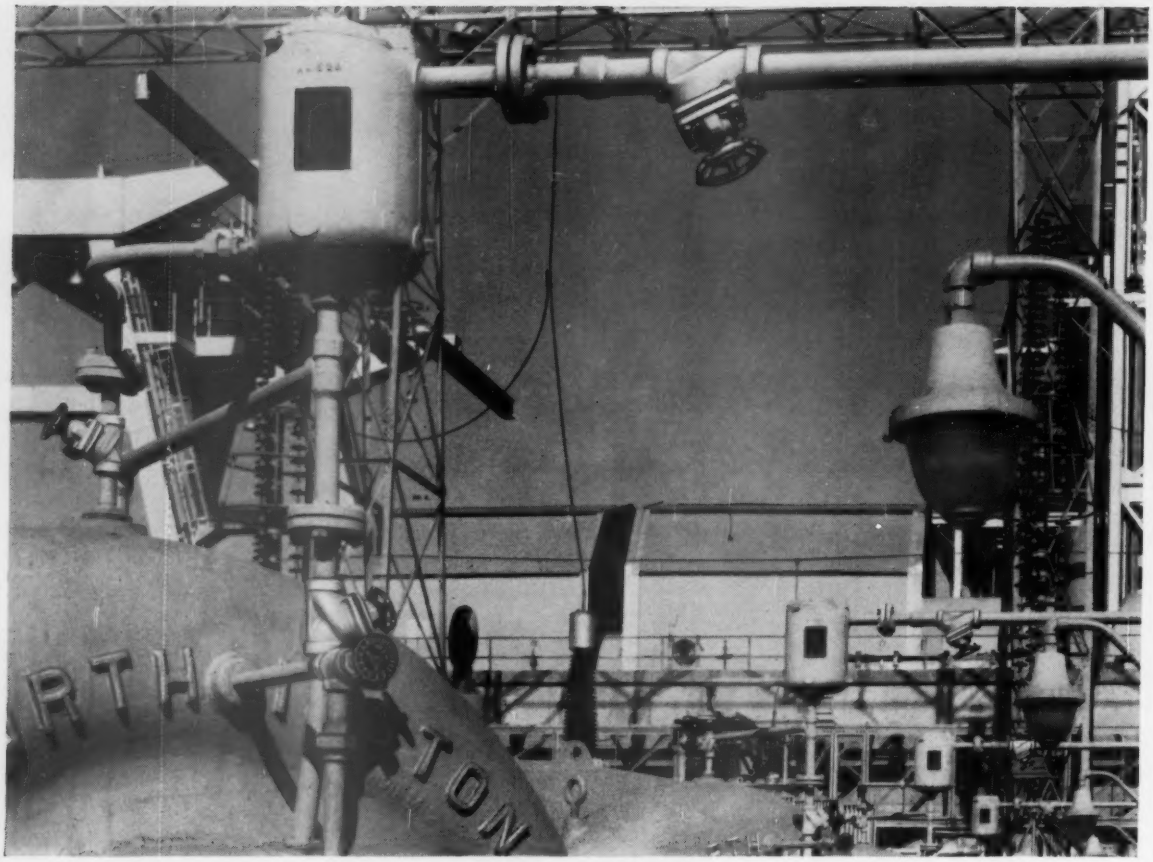
Outside Swing Hanger Truck with Central Bearing



One-Piece Underframe End Casting

CASTINGS

GRANITE CITY, ILLINOIS
EDDYSTONE, PA.



Corrosive circulating water tamed here by these CRANE VALVES

THE CASE HISTORY—Almost 2 years' operation without any maintenance of valves on circulating water lines to condensers, and on priming and instrumentation systems—with no trouble in sight. That's the experience of Southern California Edison Company's 280,000 k.w. steam station at Etiwanda with Crane Packless Diaphragm Valves.

The plant's engineers knew that sediment in recirculated water would quickly cut out the seats in ordinary valves and its corrosive elements would attack working parts to make valve operation difficult.

Not so with Crane Packless Diaphragm Valves. Their sealed bonnet keeps working parts out of contact with line fluid—free of corrosive effects. Separate disc construction with pliable insert resists erosion—seats tightly even on foreign particles. Large or small, these valves operate easily with fewer turns to the cycle. Typical Crane quality throughout—they're made better to do the job better—a bigger value for the thrifty buyer.

CRANE No. 1610 PACKLESS DIAPHRAGM VALVES

No packing to maintain. Neoprene diaphragm has longer life because it seals the bonnet only—is not subject to the cutting and crushing encountered when also required to do the seating. Separate disc gives control of fluid even should diaphragm fail. Wide selection of materials and sizes. Write for folder AD-1942 or see your Crane Representative.

CRANE CO.

General Offices: 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • KITCHENS • PLUMBING • HEATING

CRANE'S FIRST CENTURY . . . 1855-1955

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1955

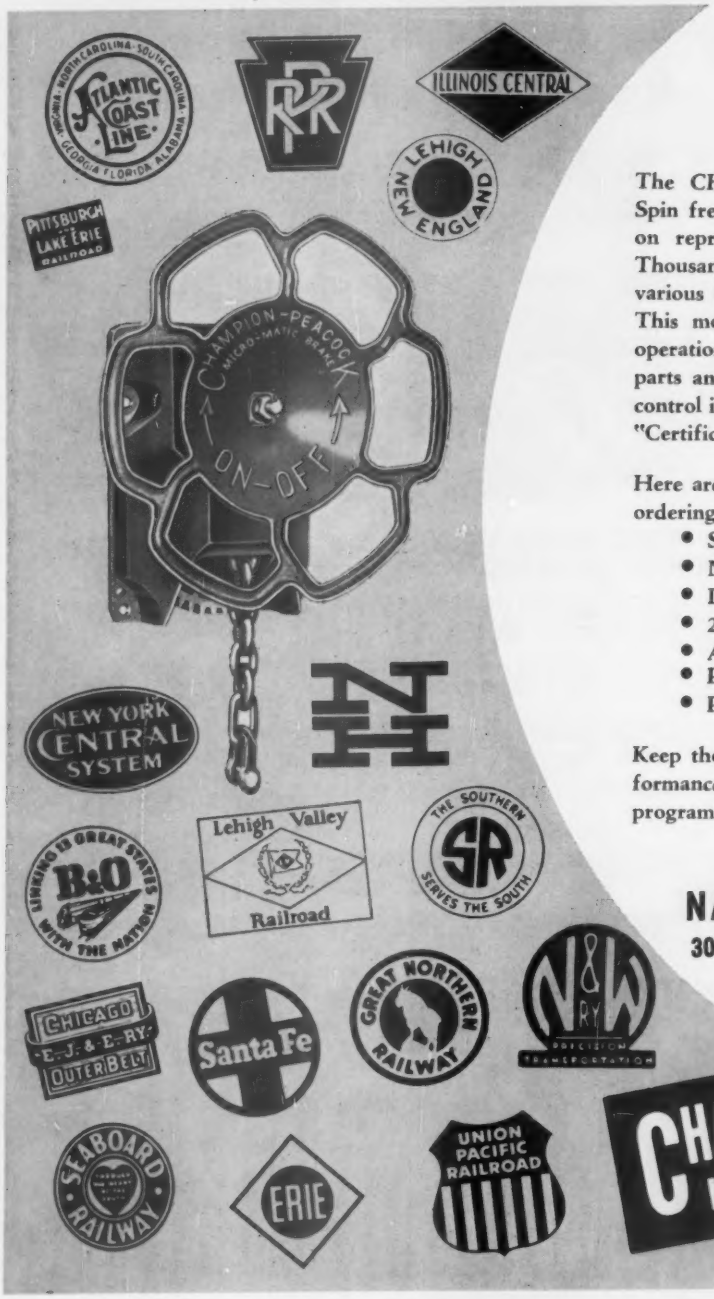
Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1955	Total (inc. misc.) 1954	Operating Expenses: Maint. Way and Structures: Total 1955	Total 1954	Deprec. and Retirements	Maint. Equipment: Total 1955	Total 1954	Deprec. and Retirements	Traffic	Transportation	Total 1955	Total 1954	Operating ratio 1955	Operating ratio 1954	Net from railway operation	Railway tax accruals	Net railway operating income 1955	Net railway operating income 1954
Akron, Canton & Youngstown	April	171	$532	....	$541	$425	$69	$65	$6	$78	$63	$14	$40	$139	$366	$334	67.6	78.6	$175	$86	$58	*$32
	4 mos.	171	1,899	....	1,932	1,672	268	251	24	237	255	55	165	543	1,373	1,347	71.0	80.5	560	259	207	115
Atchison, Topeka & Santa Fe	April	13,098	39,789	$3,007	46,984	43,406	6,261	5,968	686	9,057	8,032	1,944	1,351	14,789	33,505	31,149	71.3	71.8	13,479	7,141	6,096	5,780
	4 mos.	13,098	151,017	11,808	178,739	172,307	23,026	24,695	2,617	33,835	34,541	7,774	4,808	57,397	127,346	128,643	71.2	74.7	51,393	27,935	22,799	19,429
Atlanta & St. Andrews Bay	April	82	319	1	327	311	48	23	3	22	21	5	6	63	157	136	48.0	43.7	170	76	61	60
	4 mos.	82	1,339	3	1,365	1,232	158	98	11	122	82	21	24	259	640	548	46.9	44.5	725	315	275	229
Atlanta & West Point*	April	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	4 mos.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Western of Alabama*	April	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	4 mos.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Atlantic & Danville	April	205	159	....	161	164	34	32	2	9	13	5	10	51	114	121	70.9	73.7	47	8	10	2
	4 mos.	205	590	....	600	619	107	117	9	45	51	19	40	186	416	454	69.2	73.3	185	34	46	19
Atlantic Coast Line	April	5,344	11,158	1,564	13,796	13,908	2,345	2,059	200	2,903	2,671	598	393	4,887	11,179	10,633	81.0	76.5	2,617	1,150	924	1,013
	4 mos.	5,344	44,636	7,125	56,450	57,074	9,160	7,862	684	11,906	10,410	2,392	1,610	19,838	45,154	42,348	80.0	74.2	11,295	5,300	4,212	4,933
Charleston & Western Carolina	April	343	278	....	291	582	121	139	13	104	101	42	18	119	375	440	129.1	75.6	—84	20	—99	73
	4 mos.	343	1,882	2	1,934	2,298	541	562	47	413	400	170	75	582	1,672	1,751	86.5	76.2	262	145	50	275
Baltimore & Ohio	April	6,178	31,060	1,741	35,108	31,196	4,114	3,652	461	6,178	6,138	1,007	848	13,959	27,155	25,530	77.4	81.8	7,953	2,777	3,811	2,748
	4 mos.	6,182	113,192	5,852	127,511	123,170	14,238	14,301	1,984	23,238	24,249	4,059	3,401	53,273	101,241	100,964	79.4	82.0	26,270	8,257	13,137	10,493
Staten Island Rapid Transit	April	29	180	58	242	241	41	46	9	24	30	2	1	131	233	238	96.3	98.7	9	39	—53	—54
	4 mos.	29	751	219	981	945	171	185	42	100	107	7	6	522	937	927	95.5	98.1	44	157	—204	—212
Bangor & Aroostook	April	602	1,390	27	1,456	1,489	325	325	16	219	218	90	21	319	954	972	65.5	65.3	502	188	301	314
	4 mos.	602	5,176	118	5,451	6,249	1,360	1,360	64	979	923	359	84	1,412	4,044	4,028	74.2	64.5	1,407	476	930	1,180
Bessemer & Lake Erie	April	268	1,855	....	1,878	1,375	156	283	17	584	684	141	25	382	1,258	1,460	67.0	106.2	620	337	559	—52
	4 mos.	208	5,236	1	5,316	4,990	683	838	70	2,195	2,712	562	98	1,427	4,798	5,558	90.3	111.4	518	525	1,071	—281
Boston & Maine	April	1,576	5,468	738	6,879	6,933	1,169	1,315	147	1,043	1,050	201	129	2,952	5,551	5,876	80.8	84.8	1,328	486	315	43
	4 mos.	1,576	20,960	3,241	27,143	27,305	4,116	5,103	579	3,835	4,367	787	476	12,042	21,877	23,664	80.6	86.7	5,265	2,042	1,235	—346
Cambria & Indiana	April	35	164	....	164	119	17	21	1	69	107	22	....	23	116	157	70.7	131.5	48	97	109	53
	4 mos.	35	635	....	635	545	69	71	3	275	424	89	....	88	463	611	72.9	112.2	172	376	430	286
Canadian Pacific Lines in Maine	April	234	592	39	659	591	89	125	5	177	98	17	9	263	553	454	83.9	76.9	106	26	39	76
	4 mos.	234	2,932	194	3,239	2,857	387	343	22	597	500	70	33	1,292	2,371	1,979	73.2	69.3	867	122	560	573
Canadian Pacific Lines in Vermont	April	90	209	12	240	259	37	33	5	36	29	....	7	125	213	195	88.6	75.2	27	12	—40	—8
	4 mos.	90	767	52	892	900	197	152	54	134	122	1	29	475	869	831	97.4	92.3	23	49	—255	—218
Central of Georgia	April	1,764	3,187	150	3,629	3,347	534	517	59	576	537	141	158	1,341	2,813	2,707	77.5	80.9	816	230	449	369
	4 mos.	1,764	12,601	624	14,421	13,453	2,103	2,064	203	2,324	2,179	584	635	5,280	11,113	10,986	77.1	81.7	3,309	909	2,043	1,335
Central of New Jersey	April	613	3,784	417	4,541	4,656	518	672	92	805	956	179	71	1,894	3,495	3,879	77.0	83.3	1,046	468	410	134
	4 mos.	613	15,074	1,746	18,155	18,551	2,297	2,473	368	3,264	3,521	715	281	7,766	14,433	15,273	79.5	82.3	3,722	1,861	1,131	977
Central Vermont	April	422	834	70	979	907	165	200	17	101	117	11	18	325	644	740	65.8	81.6	335	40	181	26
	4 mos.	422	3,026	250	3,552	3,615	624	700	66	439	459	45	66	1,376	2,671	2,887	75.2	79.9	881	161	276	181
Chesapeake & Ohio	April	5,111	28,353	742	30,630	24,931	3,502	3,722	379	4,996	4,981	1,508	712	9,546	20,117	19,343	65.7	77.6	10,513	4,656	5,976	3,578
	4 mos.	5,115	104,738	2,269	112,020	95,351	13,360	14,040	1,909	19,280	20,660	6,033	2,734	36,651	77,133	76,349	68.9	80.1	34,887	15,374	20,649	13,460
Chicago & Eastern Illinois	April	868	2,251	64	2,518	2,651	381	334	57	469	481	133	136	932	2,104	2,168	83.6	81.8	414	3	257	256
	4 mos.	868	9,307	623	10,930	10,812	1,443	1,385	135	1,827	1,923	532	544	4,256	8,818	8,728	80.7	80.7	2,112	276	1,249	1,098
Chicago & Illinois Midland	April	130	571	1	584	566	64	64	9	119	131	23	31	168	427	455	73.2	80.5	157	92	58	31
	4 mos.	130	2,617	1	2,673	2,279	268	280	28	486	600	92	134	732	1,806	1,993	67.6	87.5	867	464	326	13
Chicago & North Western	April	7,873	11,978	1,550	15,275	14,339	2,455	2,445	335	3,021	3,023	834	426	7,004	13,778	13,663	90.2	95.3	1,497	1,087	—258	—1,094
	4 mos.	7,873	46,729	6,314	59,953	57,288	9,336	9,356	1,339	11,459	11,186	3,340	1,564	28,037	53,898	53,688	89.9	93.7	6,055	4,313	—899	—3,210
Chicago, Burlington & Quincy	April	8,842	15,482	1,374	18,989	20,079	2,883	2,447	394	3,420	3,505	844	505	7,460	15,178	14,798	79.9	73.7	3,812	1,966	1,731	2,362
	4 mos.	8,850	62,272	5,424	75,899	82,869	9,609	9,092	1,556	13,759	14,213	3,352	2,020	30,481	59,405	59,204	78.3	71.4	16,494	8,290	7,309	10,453
Chicago Great Western	April	1,470	2,581	7	2,750	2,694	415	400	46	411	430	121	120	826	1,864	1,828	67.8	67.8	886	353	368	362
	4 mos.	1,470	10,324	23	10,990	10,704	1,662	1,528	183	1,582	1,689	482	453	3,390	7,412	7,346	67.4	68.6	3,577	1,418	1,395	1,349
Chicago, Indianapolis & Louisville	April	541	1,633	69	1,832	1,715	263	252	19	258	272	73	92	611	1,348	1,339	73.5	78.1	484	180	203	138
	4 mos.	541	6,325	251	7,131	6,892	1,063	1,031	73	1,056	1,010	291	374	2,538	5,486	5,273	76.9	76.5	1,645	573	660	679
Chicago, Milw., St. Paul & Pacific	April	10,641	15,615	892	18,578	18,801	3,104	3,021	393	3,942	4,241	829	479	7,280	15,855	16,220	85.3	86.3	2,722	1,329	905	678
	4 mos.	10,641	62,793	3,709	74,164	74,391	11,125	10,977	1,597	15,667	17,006	3,573	1,859	30,041	62,825	65,067	84.7	87.5	11,339	5,352	3,740	1,545
Chicago, Rock Island & Pacific	April	7,920	12,744	1,285	15,397	15,121	2,080	2,012	240	2,658	2,727	571	487	5,551	11,661	11,822	75.7	78.2	3,735	1,589	1,459	1,156
	4 mos.	7,922	49,659	5,413	60,687	60,867	7,360	7,469	986	10,492	10,732	2,292	1,919	22,679	45,862	46,712	75.6	76.7	14,825	6,060	6,109	5,307
Chic., St. Paul, Minn. & Omaha	April	1,616	2,137	123	2,459	2,530	425	403	45	411	405	83	72	1,236	2,274	2,252	92.5	89.0	184	169	—248	—101
	4 mos.	1,616	8,998	529	10,311	10,176	1,546	1,553	186	1,548	1,667	347	272	5,190	9,087	9,199	88.1	90.4	1,224	691	—639	—751
Clinchfield*	April	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	4 mos.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

*Because of a strike, figures for the A&WP, WofAla and Clinchfield are not available.

(Continued on page 48)

To File Cut Here

THOUSANDS of INSTALLATIONS ON LEADING ROADS TESTIFY TO *Champion-Peacock* PERFORMANCE



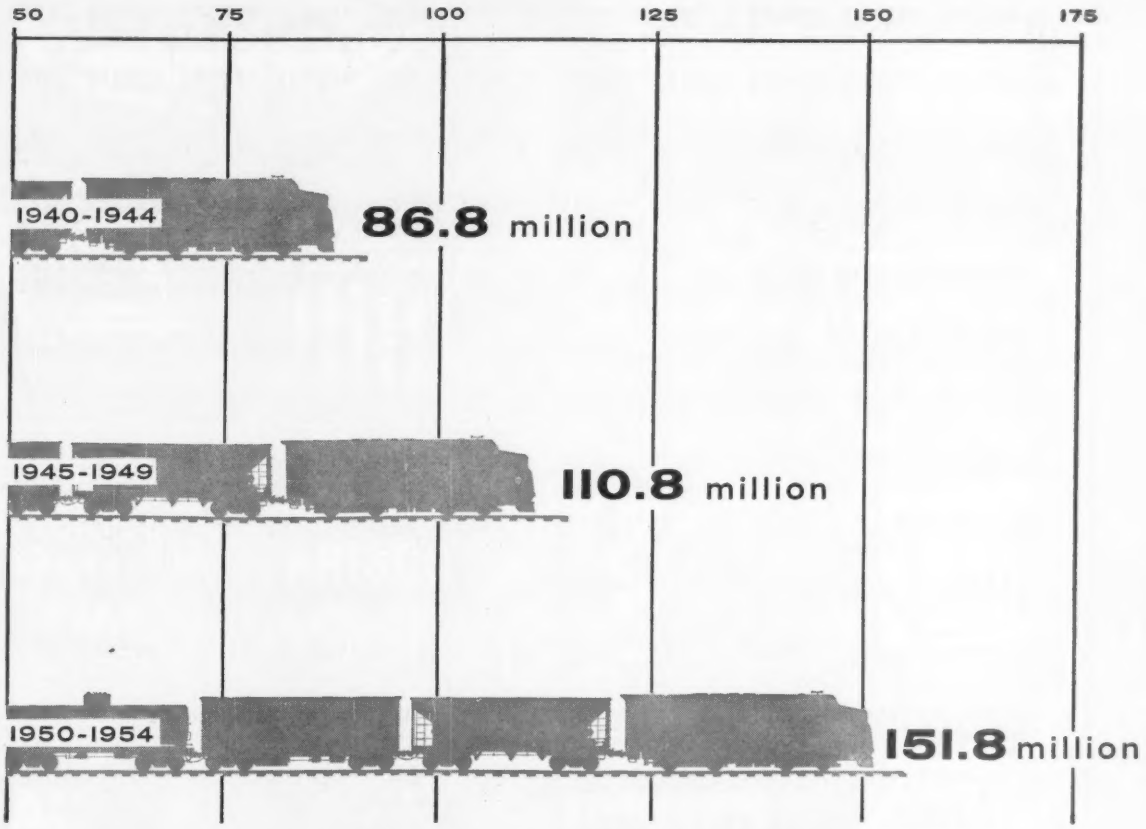
The CHAMPION-PEACOCK Micro-Matic Non-Spin freight car brake has been thoroughly proved on representative roads throughout the country. Thousands of installations have been made on various types of cars with excellent service results. This modern hand brake with its safe, one-hand operation, contains only 3 basic moving internal parts and provides ease of maneuverability for car control in spotting operations. It is made under AAR "Certificate of Approval" #2.

Here are some important reasons why railroads are ordering and re-ordering the Champion-Peacock —

- Safe, one-hand operation
- Non-Spin
- Life-of-the-car durability
- 2½ turns of wheel to remove slack
- Additional ½ turn to fully set brake
- Precise control for spotting
- Protects personnel, equipment, lading

Keep these ingredients of Peacock hand brake performance in mind in planning your freight car program.

NATIONAL BRAKE CO., INC.
30 Church St. • New York 7, N. Y.



Measured in million car-miles per wheel failure, AMCCW chilled car wheels are better all the time!

Improved AMCCW wheel performance since 1940, based on ICC records of car-miles per wheel failure, is shown above in five-year averages.

The continuous progress in safety performance of AMCCW chilled car wheels has been a matter of record for much more than the last five years.

1940-1944	86,800,000 car miles
1945-1949	110,800,000 car miles
1950-1954	151,800,000 car miles

In 1950 when the AMCCW chilled car wheel was re-designed we had laboratory evidence that the re-distribution of weight would be more in line with the stresses developed in today's high speed service.

Now, five years later, performance figures prove in service what the laboratory tests foretold.

When total derailments are considered, including loose wheels and worn flanges, the over-all safety record of AMCCW wheels is consistently better than other types of car wheels in freight car service.

Low first cost • Low exchange rates • Reduced inventory • Short haul delivery • Increased ton mileage • High safety standards • Complete AMCCW inspection • Easier shop handling

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

445 North Sacramento Boulevard, Chicago 12, Illinois

Albany Car Wheel Co. ■ Southern Wheel (American Brake Shoe Co.) ■ Griffin Wheel Co.
ACF Industries ■ Marshall Car Wheel & Foundry Co. ■ Pullman-Standard Car Mfg. Co.

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1955

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1955	Total (inc. misc.) 1954	Operating Expenses: Maint. Way and Structures: Total 1955	Total 1954	Deprec. and Retirements	Maint. Equipment: Total 1955	Total 1954	Deprec. and Retirements	Traffic	Transportation	Total 1955	Total 1954	Operating ratio 1955	Operating ratio 1954	Net from railway operation	Railway tax accruals	Net railway operating income 1955	Net railway operating income 1954
Colorado & Southern	April	719	1,014	60	1,196	1,070	117	138	19	153	171	41	29	431	792	784	66.3	73.3	404	199	164	146
	4 mos.	723	4,033	247	4,757	4,282	560	524	69	644	828	166	122	1,722	3,302	3,378	69.4	78.9	1,455	740	614	399
Ft. Worth & Denver	April	1,037	1,406	119	1,675	1,610	396	216	41	249	306	44	61	619	1,427	1,262	85.2	78.4	247	Cr. 38	169	191
	4 mos.	1,038	5,890	486	6,973	7,066	1,549	1,174	144	1,062	1,028	176	246	2,502	5,763	5,263	82.7	74.5	1,209	210	472	877
Colorado & Wyoming	April	40	180	....	286	163	33	9	18	30	27	11	1	101	178	122	62.2	74.8	108	60	47	20
	4 mos.	40	678	....	1,114	762	115	44	55	130	109	45	5	414	716	542	64.2	71.1	398	222	172	111
Columbus & Greenville	April	168	158	....	163	148	35	26	4	24	21	6	5	48	131	115	80.3	78.0	32	23	8	9
	4 mos.	168	561	....	582	654	125	112	15	106	106	25	20	188	514	498	88.3	76.1	68	55	8	49
Delaware & Hudson	April	792	3,799	134	4,061	3,962	504	554	52	747	739	182	83	1,424	3,001	3,092	73.9	78.0	1,060	247	752	499
	4 mos.	792	15,454	608	16,565	16,219	2,038	2,289	178	3,030	3,291	727	335	5,814	12,104	13,012	73.1	80.2	4,462	1,589	2,674	1,856
Delaware, Lackawanna & Western	April	962	5,348	771	6,733	6,544	802	863	143	1,028	1,084	330	186	3,100	5,416	5,459	80.5	83.4	1,317	588	579	524
	4 mos.	962	20,946	3,089	26,423	26,061	3,012	3,202	657	4,063	4,595	1,279	724	12,552	21,528	21,843	81.5	83.8	4,896	2,059	1,988	2,018
Denver & Rio Grande Western	April	2,165	5,643	201	6,022	5,642	851	1,021	106	932	922	282	188	1,772	4,040	4,039	67.1	71.6	1,982	980	999	1,017
	4 mos.	2,165	22,396	836	23,969	22,789	2,422	2,877	400	3,754	3,800	1,134	771	6,983	15,086	15,400	62.9	67.6	8,884	4,515	4,560	4,167
Detroit & Mackinac	April	232	148	....	152	160	35	40	3	30	21	9	4	37	120	115	79.0	71.6	32	20	17	18
	4 mos.	232	672	3	689	610	140	160	11	112	85	37	14	150	467	450	67.7	73.7	222	134	103	82
Detroit & Toledo Shore Line	April	50	641	....	686	641	76	74	3	61	59	21	17	202	370	354	53.9	55.2	316	104	91	79
	4 mos.	50	2,767	....	2,974	2,789	319	316	12	251	238	78	70	815	1,515	1,457	50.9	52.3	1,459	489	409	384
Detroit, Toledo & Ironton	April	464	1,610	....	1,660	1,449	265	283	29	244	267	93	42	409	1,016	1,062	61.2	73.3	644	265	391	229
	4 mos.	464	6,570	....	6,785	6,671	1,011	1,036	100	888	1,082	371	169	1,656	3,955	4,430	58.3	66.4	2,830	1,339	1,561	1,160
Duluth, Missabe & Iron Range	April	569	2,862	....	3,345	2,403	362	520	62	543	811	110	10	1,046	2,100	2,417	62.8	100.6	1,246	252	983	—237
	4 mos.	569	3,859	2	4,493	3,527	1,318	2,104	248	2,149	3,345	439	41	2,468	6,534	8,679	145.4	246.1	—2,042	500	—2,649	—5,705
Duluth, South Shore & Atlantic	April	553	617	3	651	627	111	123	11	138	126	23	27	195	493	490	75.8	78.2	158	24	109	106
	4 mos.	553	2,208	15	2,329	2,306	446	468	43	521	534	92	113	771	1,945	1,984	83.5	86.0	385	101	194	171
Duluth, Winnipeg & Pacific	April	175	412	1	418	376	60	74	4	68	57	2	6	195	337	348	80.7	92.7	80	34	—29	—70
	4 mos.	175	1,983	3	2,006	1,721	235	269	17	282	264	9	24	871	1,447	1,446	72.1	84.0	559	156	65	—191
Elgin, Joliet & Eastern	April	236	3,366	....	4,128	3,544	260	245	42	534	1,867	111	33	1,399	2,412	3,709	58.4	104.6	1,716	780	603	—598
	4 mos.	236	12,720	....	15,664	15,148	898	1,124	116	2,119	9,818	450	129	5,458	9,301	17,677	59.4	116.7	6,362	3,020	2,268	—4,538
Erie	April	2,224	11,358	542	12,871	12,330	1,555	1,561	329	2,078	1,994	511	354	5,412	10,102	9,904	78.5	80.3	2,769	889	1,272	1,157
	4 mos.	2,224	44,490	2,176	50,270	50,430	5,103	6,258	1,128	8,186	8,442	2,041	1,429	21,888	39,373	40,214	78.3	79.7	10,897	3,723	4,682	4,434
Florida East Coast	April	571	2,706	562	3,604	3,341	459	358	44	623	452	99	78	1,162	2,501	2,286	69.4	68.4	1,103	270	435	451
	4 mos.	571	10,458	2,746	14,566	13,698	1,844	1,445	177	2,384	1,921	389	311	4,713	9,995	9,390	68.6	68.6	4,571	1,309	2,011	1,996
Georgia Railroad*	April	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	4 mos.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Georgia & Florida	April	332	203	....	208	296	62	83	3	28	39	8	16	69	190	249	91.2	84.3	18	14	—12	3
	4 mos.	332	1,026	....	1,045	1,179	295	358	15	124	156	31	73	307	863	1,011	82.6	85.8	182	57	38	—10
Grand Trunk Western	April	952	4,926	173	5,517	5,098	528	661	51	721	882	96	87	2,226	3,770	3,956	68.3	77.6	1,747	309	1,015	390
	4 mos.	952	18,222	794	20,518	19,640	2,194	2,588	234	2,946	3,501	380	319	8,910	15,191	15,824	74.0	80.6	5,327	1,245	2,451	1,195
Can. Natl. Lines in New England	April	172	182	4	200	217	54	63	9	27	35	....	3	108	206	231	103.0	106.3	—6	24	—91	—95
	4 mos.	172	687	16	813	741	224	245	37	116	149	....	11	473	888	980	109.2	132.2	—75	96	—424	—559
Great Northern	April	8,282	16,693	828	18,868	17,589	4,592	3,989	391	3,434	3,667	711	436	6,607	15,915	15,200	84.3	86.4	2,953	1,654	796	588
	4 mos.	8,291	63,442	2,987	71,141	67,985	13,119	12,752	1,476	13,614	15,358	2,852	1,670	26,189	58,050	59,249	81.6	87.2	13,091	6,674	4,659	895
Green Bay & Western	April	224	348	....	354	352	67	87	4	36	47	8	21	103	245	282	69.3	80.1	108	54	32	10
	4 mos.	224	1,458	....	1,484	1,433	213	273	16	150	177	32	87	423	942	1,027	64.3	71.8	542	267	168	129
Gulf, Mobile & Ohio	April	2,757	6,663	334	7,463	6,884	1,105	1,112	101	1,409	1,335	283	262	2,077	5,203	5,261	69.7	76.4	2,260	915	861	639
	4 mos.	2,757	24,571	1,284	27,621	27,980	4,123	3,940	342	5,069	5,476	1,131	1,065	8,111	19,787	20,617	71.6	73.7	7,834	3,218	3,173	2,940
Illinois Central	April	6,539	21,248	1,736	25,475	22,840	3,257	3,483	457	3,886	4,145	792	541	8,293	17,069	17,839	67.0	78.1	8,406	4,914	2,786	1,681
	4 mos.	6,539	77,694	6,883	93,884	91,664	13,078	14,016	1,601	15,640	17,087	3,087	2,160	33,318	68,526	71,921	73.0	78.5	25,358	13,731	9,498	6,864
Illinois Terminal	April	355	793	42	939	875	145	138	23	168	146	42	44	332	746	745	79.4	85.1	193	89	72	53
	4 mos.	355	3,054	178	3,644	3,497	480	559	96	601	641	166	175	1,495	2,979	3,078	81.8	88.0	665	310	240	161
Kansas City Southern	April	891	3,291	91	3,694	3,551	390	328	43	420	413	91	89	1,047	2,080	2,040	56.3	57.5	1,615	698	680	659
	4 mos.	891	12,804	383	14,432	14,102	1,372	1,475	165	1,643	1,595	365	357	4,190	8,069	8,219	55.9	58.3	6,362	2,833	2,645	2,477
Kansas, Oklahoma & Gulf	April	327	393	....	396	382	73	55	14	31	37	11	28	101	252	257	63.7	67.4	144	64	50	39
	4 mos.	327	1,582	....	1,587	1,771	225	235	35	120	158	45	113	415	953	1,058	60.0	59.8	634	274	223	272
Lake Superior & Ishpeming	April	149	190	....	242	125	55	60	10	63	65	16	2	68	201	192	83.0	154.1	41	30	30	—54
	4 mos.	149	326	....	391	255	181	218	38	262	272	65	9	210	710	716	181.6	280.8	—319	115	—367	—485
Lehigh & Hudson River	April	96	273	....	273	278	33	42	2	31	32	8	15	86	177	192	64.7	69.2	96	40	34	28
	4 mos.	96	1,070	....	1,071	1,090	133	154	9	117	127	34	61	348	711	744	66.3	68.3	360	139	118	109
Lehigh & New England	April	180	622	....	627	634	70	80	6	152	151	40	23	208	494	473	78.9	74.5	132	117	91	118
	4 mos.	180	2,132	....	2,151	2,281	300	305	27	623	590	159	68	736	1,902	1,879	88.4	82.4	249	293	229	362
Lehigh Valley	April	1,154	4,897	315	5,524	5,290	685	797	103	976	921	202	139	2,355	4,399	4,355	79.6	82.3	1,125	319	622	372
	4 mos.	1,154	19,262	1,150	21,583	21,074	2,653	3,069	390	3,806	3,644	818	555	9,480	17,481	17,580	81.0	83.4	4,102	1,279	2,158	1,274
Long Island	April	360	1,144	3,702	5,112	4,581	668	748	86	957	976	125	20	2,439	4,266	4,389	83.5	95.8	846	304	225	—449
	4 mos.	360	4,274	13,938	19,232	17,160	2,558	2,708	347	3,747	3,729	498	68	9,781	16,894	16,775	87.8	97.8	2,338	1,222	—49	—2,198

*Because of a strike, figures for the Georgia are not available.

(Continued on page 50)

all aboard...

—And with the expanded use of low cost fuels, good lubrication is now more important than ever.

STANDARD OIL COMPANY (Indiana)

STANDARD

LUBRICATING OILS

THESE ARE JUST 13 OF 140 RAILROADS SERVED BY STANDARD OIL COMPANY

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1955

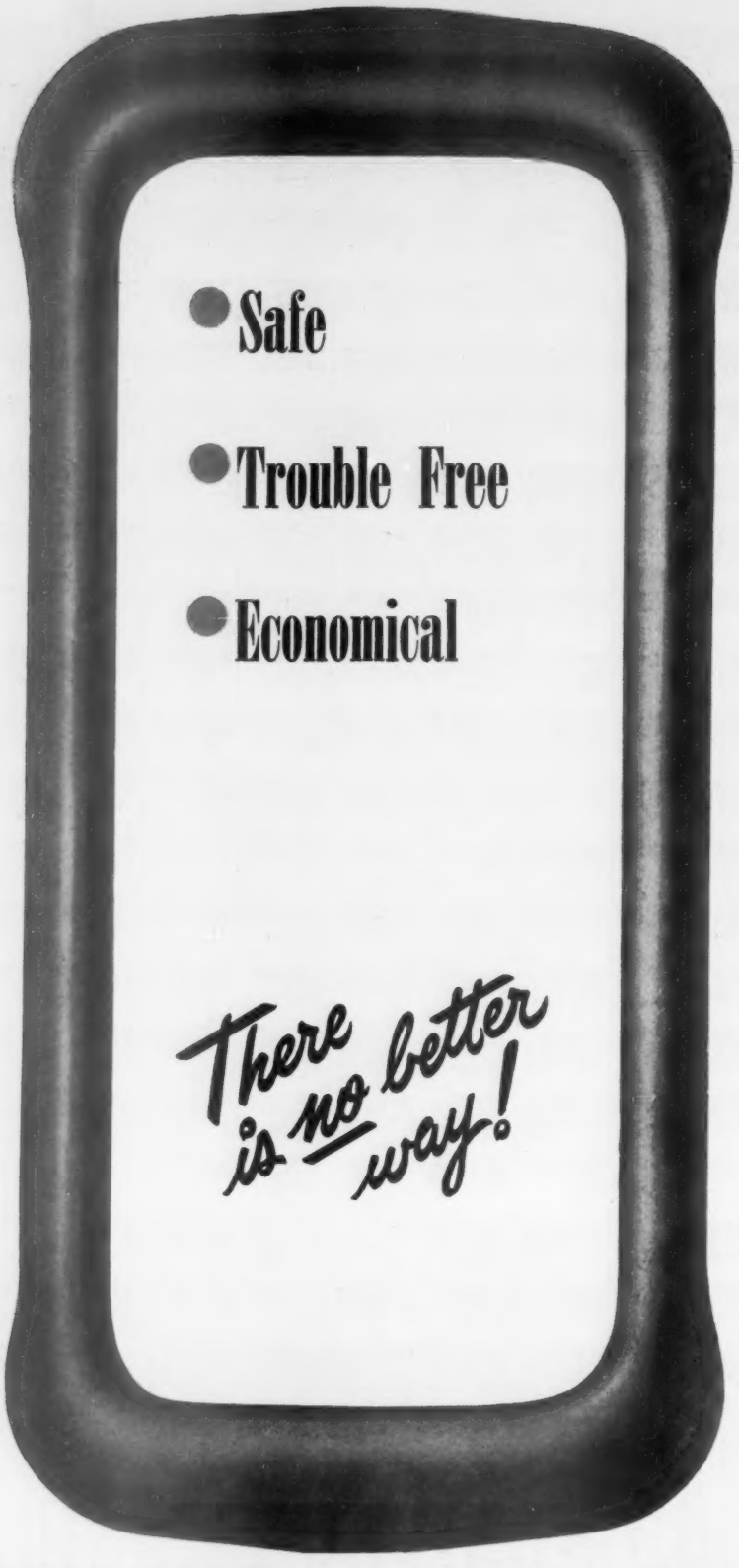
Name of Road		Average mileage operated during period	Operating Revenues				Operating Expenses										Operating ratio		Net from railway operation	Railway tax accruals	Net railway operating income	
							Maint. Way and Structures			Maint. Equipment												
			Freight	Pass.	Total 1955	Total (inc. misc.) 1954	Total 1955	Total 1954	Deprec. and Retirements	Total 1955	Total 1954	Deprec. and Retirements	Traffic	Transportation	Total 1955	Total 1954	1955	1954			1955	1954
Louisiana & Arkansas	April	753	2,066	47	2,205	2,340	212	271	19	264	256	92	72	585	1,214	1,263	55.1	54.0	991	408	490	529
	4 mos.	753	8,341	196	8,901	8,889	863	1,186	80	1,042	1,095	364	287	2,360	4,871	5,270	54.7	59.3	4,030	1,710	1,985	1,849
Louisville & Nashville	April	4,7[illegible]	3,198	4	3,446	16,220	832	2,944	228	1,992	3,970	834	334	1,708	5,457	13,829	158.6	85.3	2,021	Cr. 842	390	1,783
	4 mos.	4,733	40,514	2,067	45,865	67,294	6,610	11,565	960	10,615	15,356	3,334	1,387	16,354	37,574	55,032	81.9	81.8	8,290	4,897	7,517	8,149
Maine Central	April	944	1,902	84	2,098	2,181	382	434	27	342	401	78	21	727	1,564	1,683	74.6	77.2	534	228	203	196
	4 mos.	944	7,717	344	8,558	8,959	1,586	1,654	108	1,316	1,603	311	82	3,015	6,347	6,750	74.2	75.4	2,211	924	877	839
Midland Valley	April	334	207	....	209	161	40	44	7	10	10	4	6	53	117	118	56.1	73.7	92	41	40	13
	4 mos.	334	702	....	714	674	158	156	24	45	48	15	20	207	469	468	65.7	69.5	245	127	66	43
Minneapolis & St. Louis	April	1,397	1,492	3	1,555	1,590	309	321	22	282	271	76	102	558	1,364	1,375	87.7	86.5	191	152	93	86
	4 mos.	1,397	6,144	12	6,401	6,546	1,106	1,079	104	1,100	1,071	305	409	2,254	5,309	5,357	82.9	81.8	1,092	719	433	499
Minn., St. Paul & S. Ste. Marie	April	3,224	2,648	51	2,859	2,961	629	644	57	599	656	123	79	1,053	2,495	2,663	87.2	89.9	365	209	180	43
	4 mos.	3,224	9,997	203	10,781	10,467	2,220	2,321	216	2,333	2,639	481	324	4,446	9,866	10,503	91.5	100.3	915	815	189	—806
Mississippi Central	April	148	188	....	193	198	49	61	2	24	29	6	14	47	149	162	77.1	81.8	44	17	16	15
	4 mos.	148	792	....	810	829	212	249	9	105	109	23	58	202	623	661	76.9	79.7	187	66	76	73
Missouri-Illinois	April	172	507	....	509	492	53	87	8	79	81	28	10	128	274	311	53.8	63.2	235	111	131	79
	4 mos.	172	1,830	....	1,839	1,658	220	310	19	291	333	113	45	475	1,067	1,178	58.0	71.1	772	317	480	238
Missouri-Kansas-Texas Lines	April	3,241	5,209	249	5,965	6,094	843	861	92	841	925	243	246	2,266	4,549	4,657	76.3	76.4	1,415	495	581	550
	4 mos.	3,241	20,591	1,006	23,590	24,195	3,268	3,619	362	3,426	3,735	975	982	9,113	18,094	18,995	76.7	78.5	5,495	1,828	2,165	1,974
Missouri Pacific	April	6,919	15,299	740	17,827	17,121	3,006	2,992	280	3,424	3,135	794	502	6,401	13,969	14,049	78.4	82.1	3,858	1,064	2,319	1,455
	4 mos.	6,919	59,978	2,938	69,620	70,086	10,464	12,073	1,129	13,871	13,076	3,178	1,924	25,340	54,186	56,981	77.8	81.3	15,435	4,304	8,690	5,954
International-Great Northern	April	1,104	2,386	124	2,764	2,702	543	533	38	512	480	122	66	1,078	2,318	2,284	83.9	84.5	446	118	226	207
	4 mos.	1,104	9,307	523	10,733	10,601	2,043	1,986	161	1,931	1,875	489	251	4,225	8,930	9,036	83.2	85.2	1,802	462	1,019	894
Gulf Coast Lines	April	1,723	3,061	70	3 373	3,369	699	699	47	469	505	114	99	1,125	2,541	2,576	75.3	76.4	831	149	459	435
	4 mos.	1,723	12,470	323	13,654	14,004	2,654	2,767	184	1,956	2,065	457	383	4,500	10,082	10,369	73.8	74.0	3,573	610	2,074	1,860
Monongahela	April	177	476	....	478	502	61	72	16	56	54	14	1	161	290	298	60.5	59[illegible]5	189	27	45	53
	4 mos.	177	1,873	....	1,883	1,862	245	255	63	223	225	54	3	686	1,203	1,189	63.9	63.8	680	107	97	90
Montour	April	51	124	....	130	141	15	13	2	44	48	17	1	50	120	121	92.5	85.6	10	14	28	46
	4 mos.	51	449	....	490	605	55	66	10	168	238	67	4	201	467	568	95.5	94.0	22	61	122	196
Nashville, Chatt. & St. Louis	April	1,043	361	2	441	3,265	130	548	46	311	428	139	103	338	988	2,363	224.2	72.4	—547	Cr. 122	—388	390
	4 mos.	1,043	6,656	283	7,922	12,548	1,275	2,000	182	1,467	1,662	554	450	3,163	6,828	9,122	86.2	72.7	1,094	452	410	1,592
New York Central	April	10,710	46,159	7,871	60,957	59,227	7,492	9,533	988	10,218	11,056	2,229	1,068	27,217	49,021	51,166	80.4	86.4	11,935	4,871	5,125	1,364
	4 mos.	10,710	179,535	32,269	228,866	236,711	25,852	31,833	3,899	39,908	49,044	9,057	4,259	105,681	189,033	205,603	79.1	86.9	49,834	19,847	21,550	5,436
Pittsburgh & Lake Erie	April	221	3,218	59	3,462	2,679	413	431	32	823	993	284	73	1,141	2,668	2,789	77.1	103.7	794	652	1,039	598
	4 mos.	221	11,591	259	12,522	11,762	1,596	1,646	157	3,091	4,077	1,143	294	4,353	10,208	11,366	81.5	96.6	2,314	2,201	3,848	2,910
New York, Chicago & St. Louis	April	2,179	12,122	148	12 674	11,455	1,560	1,462	149	2,041	2,070	359	331	4,455	8,873	8,543	70.0	74.6	3,801	1,721	1,578	1,226
	4 mos.	2,179	46,823	554	48,860	46,027	5,567	5,441	564	8,214	7,965	1,443	1,321	17,536	34,487	33,443	70.7	72.7	14,313	6,671	5,913	5,153
New York, New Haven & Hartford	April	1,769	7,327	4,077	12,846	12,710	1,469	2,805	267	1,908	1,952	447	188	5,415	9,875	11,598	76.9	91.3	2,971	758	1,249	—783
	4 mos.	1,769	28,217	15,544	49,495	49,704	5,846	7,826	1,060	7,313	7,681	1,445	895	22,051	39,658	42,031	80.1	84.6	9,838	2,374	3,839	60
New York Connecting	April	21	376	....	402	374	57	76	25	11	32	....	....	91	162	202	40.4	54.2	240	83	164	73
	4 mos.	21	1,473	....	1,578	1,466	296	290	101	84	73	....	....	371	766	700	48.6	47.8	811	323	432	420
New York, Ontario & Western	April	541	449	....	455	501	113	128	17	84	91	22	24	245	497	525	109.4	104.9	—43	37	—161	—137
	4 mos.	541	1 791	....	1,822	1,966	417	459	81	352	373	90	98	997	1,985	2,067	109.0	105.1	—164	149	—605	—524
New York, Susquehanna & Western	April	120	438	46	508	504	58	50	5	60	60	13	8	209	376	368	73.9	73.0	133	39	41	47
	4 mos.	120	1,815	181	2,088	1,878	218	208	22	242	261	51	32	856	1,479	1,487	70.8	79.2	609	192	199	43
Norfolk & Western	April	2,133	15,839	331	16,879	13,378	2,083	2,146	311	3,313	3,159	687	345	4,686	11,136	10,591	66.0	79.2	5,742	3,560	3,135	1,425
	4 mos.	2,133	59,892	1,081	61,794	52,944	8,672	8,868	1,242	13,005	12,927	2,746	1,349	18,619	44,231	43,739	71.6	82.6	17,563	11,395	9,545	4,887
Norfolk Southern	April	605	837	....	850	788	181	188	13	123	139	27	45	244	653	671	76.8	85.1	197	95	55	39
	4 mos.	605	3,263	....	3,315	3,219	687	700	52	495	468	111	187	982	2,574	2,597	77.6	80.7	741	358	224	199
Northern Pacific	April	6,866	12,240	548	13,771	13,809	1,978	2,391	270	2,571	3,029	531	396	5,568	11,299	12,053	82.1	87.3	2,471	1,475	1,326	1,069
	4 mos.	6,866	47,685	2,142	53,697	50,378	6,959	8,335	1,056	10,464	11,700	2,069	1,387	22,798	44,754	46,827	83.3	93.0	8,943	5,584	4,477	276
Northwestern Pacific	April	331	1,233	4	1,259	1,041	269	287	17	96	103	4	7	347	743	758	59.0	72.8	516	199	151	64
	4 mos.	331	4,593	12	4,698	3,897	1,144	1,325	126	382	368	16	23	1,346	2,992	3,148	63.7	80.8	1,707	664	415	—124
Oklahoma City-Ada-Atoka	April	132	74	....	74	118	16	24	2	1	1	....	2	17	40	53	53.9	44.9	34	13	10	23
	4 mos.	132	308	....	311	515	65	79	10	5	7	....	7	69	163	196	52.4	38.1	148	55	42	132
Pennsylvania	April	10,037	56,589	10,131	74,268	70,578	7,631	7,235	1,281	15,071	15,422	2,923	1,224	32,421	59,705	58,498	80.4	82.9	14,562	4,906	6,886	4,643
	4 mos.	10,037	215,755	40,773	285,552	278,514	30,211	34,246	5,535	57,510	62,076	11,697	4,884	127,955	233,972	242,603	81.9	87.1	51,580	19,239	22,654	6,121
Pennsylvania-Reading Seashore Lines	April	358	612	111	736	738	220	216	42	116	104	22	12	442	847	811	115.0	110.0	—111	61	—319	—325
	4 mos.	358	2,283	362	2,714	2,745	794	813	116	437	414	87	42	1,768	3,191	3,305	117.6	120.4	—477	246	—1,265	—1,598

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1955

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass	Total (inc. misc.) 1955	Total (inc. misc.) 1954	Operating Expenses: Maint. Way and Structures: Total 1955	Total 1954	Deprec. and Retirements	Maint. Equipment: Total 1955	Total 1954	Deprec. and Retirements	Traffic	Transportation	Total 1955	Total 1954	Operating ratio 1955	Operating ratio 1954	Net from railway operation	Railway tax accruals	Net railway operating income 1955	Net railway operating income 1954
Pittsburg & Shawmut	April	97	139	....	139	165	23	31	9	43	41	12	4	34	113	127	81.3	77.1	26	Cr. 11	83	60
	4 mos.	97	572	....	576	681	110	121	20	177	174	47	17	143	484	513	84.1	75.4	91	2	237	273
Pittsburgh & West Virginia	April	132	674	....	678	601	104	95	24	112	118	37	61	180	499	493	73.6	80.3	179	68	114	84
	4 mos.	132	2,545	....	2,560	2,369	411	356	96	472	486	144	243	680	1,970	1,901	76.9	80.2	591	226	365	335
Reading	April	1,305	8,384	580	9,558	8,984	1,142	1,107	198	1,816	1,757	420	153	3,710	7,247	7,242	75.8	80.6	2,311	918	1,190	1,006
	4 mos.	1,305	32,981	2,275	37,836	37,642	4,379	4,471	743	7,156	7,085	1,693	633	14,961	28,906	29,140	76.4	77.4	8,930	3,226	4,739	4,556
Richmond, Fredericksburg & Potomac	April	118	1,567	516	2,401	2,307	277	278	23	350	349	67	23	717	1,508	1,537	62.8	66.6	893	452	300	279
	4 mos.	118	5,853	2,042	9,143	9,258	1,177	1,183	99	1,330	1,355	266	88	2,997	6,167	6,224	67.4	67.2	2,976	1,466	911	1,130
Rutland	April	392	343	....	373	400	67	80	9	49	57	14	28	138	307	342	82.4	85.7	66	24	19	6
	4 mos.	392	1,393	....	1,528	1,510	312	302	42	211	244	53	100	584	1,310	1,394	85.7	92.3	218	98	23	—91
Sacramento Northern	April	267	208	....	217	158	49	62	5	17	12	3	2	68	148	157	68.1	99.4	69	14	37	—31
	4 mos.	267	747	....	782	759	239	274	17	66	50	13	9	261	630	652	80.5	85.9	152	59	22	—25
St. Louis-San Francisco	April	4,601	9,621	352	10,749	9,498	1,456	1,592	192	1,832	1,604	527	360	3,740	7,962	7,825	74.1	82.4	2,786	1,404	1,363	766
	4 mos.	4,601	35,497	1,490	39,948	38,646	5,625	6,324	669	6,794	6,578	2,108	1,427	14,405	30,352	31,387	76.0	81.2	9,596	4,730	4,614	2,975
St. Louis, San Francisco & Texas	April	157	417	3	445	322	63	43	—1	35	40	1	26	185	319	269	71.8	83.5	125	47	30	—34
	4 mos.	157	1,572	18	1,682	1,468	181	173	12	127	130	5	104	632	1,038	1,062	64.7	72.4	594	232	172	93
St. Louis Southwestern Lines	April	1,561	5,301	19	5,516	5,000	625	714	64	576	615	108	176	1,563	3,118	3,135	56.5	62.7	2,398	1,252	857	725
	4 mos.	1,561	20,095	68	20,847	20,323	2,552	2,960	249	2,343	2,715	419	706	6,132	12,445	13,154	59.7	64.7	8,401	4,087	3,133	941
Seaboard Air Line	April	4,064	11,255	1,100	13,454	13,618	2,174	2,241	191	2,451	2,414	550	364	4,260	9,776	9,862	72.7	72.4	3,678	1,313	1,993	1,961
	4 mos.	4,064	45,403	4,426	54,276	54,185	8,812	8,846	764	9,475	9,312	2,179	1,469	17,043	38,899	39,006	71.7	72.0	15,377	5,617	8,356	7,994
Southern Railway	April	6,239	21,128	1,176	24,124	21,061	2,869	2,979	231	3,961	3,689	758	395	7,147	15,401	14,620	63.8	69.4	8,723	3,849	4,155	2,963
	4 mos.	6,239	79,027	4,925	90,812	83,283	11,163	11,856	927	15,111	15,539	3,047	1,635	27,247	58,958	59,369	64.9	71.3	31,855	14,543	14,766	11,153
Alabama Great Southern	April	326	2,005	89	2,237	1,412	258	245	32	321	269	59	34	509	1,210	1,038	54.1	73.5	1,027	445	435	201
	4 mos.	326	5,999	257	6,821	5,932	927	918	124	1,193	1,106	232	134	1,903	4,476	4,160	65.6	70.1	2,345	964	1,116	880
Cinn., New Orleans & Texas Pacific	April	337	4,548	136	4,993	3,632	590	518	51	659	649	133	75	1,032	2,579	2,301	51.4	62 5	2,429	1,156	1,014	611
	4 mos.	337	14,333	727	15,938	14,315	2,104	1,922	189	2,485	2,592	533	236	3,664	9,141	8,958	57.4	62 7	6,795	3,372	3,016	2,316
Georgia Southern & Florida	April	475	853	91	1,040	926	260	204	8	87	69	7	21	353	773	612	74.4	66.1	266	44	—2	160
	4 mos.	475	2,977	348	3,661	3,334	1,074	763	35	312	273	27	80	1,181	2,849	2,371	77.5	71.0	822	174	—143	71
New Orleans & Northeastern	April	204	951	64	1,079	1,051	199	171	16	173	140	42	20	241	699	613	64.8	58.3	310	233	129	174
	4 mos.	204	3,372	194	3,316	3,976	706	580	74	530	542	169	81	881	2,476	2,261	64.9	56.9	1,340	825	497	649
Southern Pacific	April	8,130	36,743	2,400	41,671	39,647	4,974	5,000	518	8,458	8,563	1,802	900	16,029	32,391	32,295	77.7	81.5	9,280	4,199	4,173	3,054
	4 mos.	8,130	140,835	10,076	160,969	152,432	19,618	19,305	1,930	33,334	33,101	7,511	3,491	61,766	126,352	125,363	78.5	82.2	34,617	16,030	16,027	11,163
Texas & New Orleans	April	4,315	10,024	399	11,075	10,485	1,872	1,867	161	1,450	1,457	143	270	3,729	7,904	8,191	71.4	78.1	3,172	1,327	804	442
	4 mos.	4,315	39,009	1,715	43,323	43,096	7,335	7,383	569	5,688	6,065	583	1,069	15,007	31,414	32,694	72.5	75.9	11,909	4,826	3,005	2,175
Spokane International	April	150	267	....	279	290	28	57	2	27	25	10	6	66	139	170	49.9	58.7	139	49	63	63
	4 mos.	150	1,073	....	1,118	1,036	181	204	10	111	102	38	23	262	626	641	55.9	61.9	492	176	220	188
Spokane, Portland & Seattle	April	944	2,224	61	2,443	2,367	422	403	48	381	323	108	29	863	1,798	1,596	73.6	67.4	645	219	358	389
	4 mos.	944	8,918	277	9,767	9,084	1,513	1,442	194	1,588	1,455	436	122	3,304	6,918	6,635	70.8	73.0	2,849	1,199	1,378	1,415
Tennessee Central	April	286	530	1	539	362	83	80	6	78	57	22	14	166	367	295	68.1	81.4	172	27	66	10
	4 mos.	286	1,691	2	1,733	1,515	289	305	22	256	235	82	59	555	1,263	1,191	72.9	78.6	470	104	147	85
Texas & Northern	April	8	138	....	141	75	3	4	....	9	7	3	1	6	25	26	18.0	34.2	116	1	94	30
	4 mos.	8	502	....	536	338	15	20	1	36	35	11	4	27	105	118	19.5	34.8	431	5	332	129
Texas & Pacific	April	1,831	5,628	280	6,421	6,453	1,025	1,115	93	986	984	249	188	2,129	4,682	4,726	72.9	73.2	1,738	654	684	693
	4 mos.	1,831	23,324	1,177	26,587	26,389	3,951	4,368	378	3,877	4,328	992	765	8,609	18,624	19,553	70.0	74.1	7,963	2,986	3,183	2,746
Texas Mexican	April	161	267	....	285	262	42	50	5	27	29	10	9	60	157	153	55.3	58.7	128	57	47	38
	4 mos.	161	926	....	994	942	181	218	22	110	115	39	38	245	647	672	65.1	71.3	347	153	109	76
Toledo, Peoria & Western	April	239	609	....	618	591	73	111	6	57	61	11	47	139	376	383	60.9	64.8	242	94	76	62
	4 mos.	239	2,218	....	2,249	2,409	303	422	27	229	213	45	177	536	1,429	1,483	63.5	61.6	820	345	249	300
Union Pacific	April	9,813	33,573	2,098	38,540	37,794	5,932	5,346	626	6,972	6,752	1,627	1,220	13,255	29,295	28,078	76.0	74.3	9,245	4,969	3,036	2,618
	4 mos.	9,813	132,966	8,229	152,300	148,647	20,881	17,868	1,964	29,572	29,018	6,476	4,412	52,437	115,163	114,608	75.6	77.1	37,137	20,798	11,111	7,731
Utah	April	99	85	....	86	69	14	13	....	37	46	7	1	29	88	96	102.5	139.4	—2	7	—9	—16
	4 mos.	99	439	....	440	312	53	62	5	130	177	32	3	139	355	399	80.8	127.6	84	32	63	—98
Virginian	April	611	3,328	1	3,462	2,779	428	408	63	680	543	196	48	662	1,934	1,766	55.9	63.6	1,528	908	900	579
	4 mos.	611	13,069	3	13,568	11,615	1,731	1,691	246	2,833	2,600	786	194	2,765	7,929	7,749	58.4	66.7	5,640	3,174	3,174	2,187
Wabash	April	2,393	8,418	328	9,503	8,907	1,223	1,266	162	1,327	1,469	361	309	3,778	7,039	7,220	74.1	81.1	2,463	885	1,030	561
	4 mos.	2,393	32,390	1,438	36,722	36,586	4,372	4,625	465	5,124	5,910	1,445	1,228	15,319	27,653	28,661	75.3	78.3	9,069	3,187	3,697	2,754
Ann Arbor	April	294	792	....	799	744	83	78	8	135	135	31	28	318	584	573	73.2	77.1	214	93	94	68
	4 mos.	294	2,900	....	2,926	2,804	298	314	28	535	535	122	113	1,314	2,336	2,352	79.8	83.9	590	236	247	165
Western Maryland	April	847	3,516	3	3,703	3,393	540	461	52	626	675	204	99	1,128	2,623	2,529	70.8	74.5	1,080	604	763	613
	4 mos.	847	13,560	11	14,400	13,899	2,100	1,981	207	2,447	2,669	812	397	4,465	10,282	10,367	71.4	74.6	4,119	2,077	2,750	2,460
Western Pacific	April	1,193	4,329	198	4,626	4,011	800	808	86	615	639	180	199	1,276	3,152	3,160	68.1	78.8	1,474	600	766	476
	4 mos.	1,193	15,301	664	16,291	15,223	3,092	2,887	339	2,476	2,528	695	790	5,039	12,413	12,239	76.2	80.4	3,878	1,518	2,057	1,479
Wisconsin Central	April	1,042	2,296	37	2,483	2,485	484	321	37	374	416	87	69	934	1,985	1,881	79.9	75.7	499	143	234	314
	4 mos.	1,042	8,760	121	9,422	9,171	1,340	1,299	149	1,502	1,727	342	285	3,786	7,378	7,625	78.3	83.1	2,044	589	891	394



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A-842

Freight Operating Statistics of Large Steam Railways—Selected Items

Region, Road and Year		Miles of road operated	Train-miles	Locomotive-Miles: Principal and helper	Locomotive-Miles: Light	Car Miles: Loaded (thousands)	Car Miles: Per cent loaded	Ton-miles (thousands): Gross excl. locos & tenders	Ton-miles (thousands): Net rev. and non-rev.	Road-locos. on line: Serviceable: Unstored	Road-locos. on line: Serviceable: Stored	Road-locos. on line: B.O.	Road-locos. on line: per cent B.O.
New Eng. Region	Boston & Maine 1955	1,564	258,273	264,782	9,944	10,085	63.8	657,272	251,505	71	..	5	6.6
	1954	1,665	266,569	271,899	9,477	9,991	64.2	653,767	246,090	74	1	5	6.3
	N. Y., N. H. & Htfd 1955	1,746	297,440	297,515	16,309	12,424	66.6	766,892	301,046	86	..	8	8.5
	1954	1,747	295,014	295,025	16,762	12,062	60.7	742,814	289,071	81	..	6	6.9
Great Lakes Region	Delaware & Hudson 1955	792	190,394	196,181	10,903	9,417	65.4	655,761	321,631	38	2	3	7.0
	1954	793	196,923	202,248	10,923	9,095	64.1	636,256	309,815	44	..	1	2.2
	Del., Lack. & Western 1955	962	288,754	301,517	22,211	12,560	66.3	812,407	339,787	62	..	2	3.1
	1954	962	265,965	279,463	18,858	10,585	64.9	691,488	284,270	64	..	1	1.5
	Erie 1955	2,224	571,552	577,010	14,124	31,307	68.1	1,905,301	749,543	163	..	3	1.8
	1954	2,224	525,378	528,220	18,971	29,145	69.2	1,770,229	705,098	165	..	2	1.2
	Grand Trunk Western 1955	952	279,005	282,308	2,205	9,325	59.8	660,514	257,557	59	1	17	22.1
	1954	952	261,831	265,458	2,108	8,582	57.9	615,404	240,951	61	2	13	16.9
	Lehigh Valley 1955	1,142	208,187	211,011	5,462	10,394	65.8	693,010	307,682	33	..	1	2.9
	1954	1,150	205,413	208,709	7,042	9,712	64.1	653,575	284,149	30	2	2	5.9
	New York Central 1955	10,661	2,602,912	2,650,569	105,730	103,345	61.2	7,248,106	3,127,394	533	79	98	13.8
	1954	10,663	2,348,015	2,394,162	95,545	93,259	60.2	6,600,813	2,827,018	631	109	156	17.4
	New York, Chic. & St. L 1955	2,155	739,244	765,098	6,827	29,581	64.1	2,048,375	898,151	148	18	42	20.2
	1954	2,161	673,932	695,043	6,518	25,951	62.1	1,816,037	758,828	171	42	37	14.8
	Pitts. & Lake Erie 1955	221	64,484	64,940	112	2,955	67.2	257,672	161,121	15	7	..	..
	1954	221	56,803	57,045	124	2,457	61.0	218,716	130,204	16	16	1	3.0
	Wabash 1955	2,381	554,435	556,218	7,205	24,549	64.8	1,582,662	592,301	104	..	..	..
	1954	2,381	528,159	529,545	7,089	22,566	64.1	1,476,080	557,420	108	1	..	..
Central Eastern Region	Baltimore & Ohio 1955	6,077	1,542,511	1,688,540	146,603	61,593	61.6	4,698,309	2,212,139	414	21	87	16.7
	1954	6,077	1,372,390	1,503,109	134,406	55,909	60.8	4,064,053	1,854,420	433	98	104	16.4
	Bessemer & Lake Erie 1955	208	34,413	34,836	68	1,544	65.6	173,738	114,054	12	4	..	..
	1954	209	38,754	39,022	49	1,334	59.8	146,824	90,120	11	6	..	..
	Central RR Co. of New Jersey 1955	613	126,647	127,752	5,342	4,663	63.2	352,217	174,167	68	..	9	11.7
	1954	613	124,817	127,576	7,351	4,622	62.9	346,161	174,061	63	2	10	13.3
	Chicago & Eastern Ill 1955	868	118,134	118,134	2,761	5,103	64.8	362,067	170,483	25	..	2	7.4
	1954	868	119,154	119,154	2,912	4,726	63.8	330,117	156,754	25	..	3	10.7
	Elgin, Joliet & Eastern 1955	236	83,879	84,480	.....	2,733	62.5	220,509	119,708	33	5	3	7.3
	1954	236	87,127	87,866	28	2,734	63.2	216,301	115,058	31	6	4	9.8
	Pennsylvania System 1955	9,892	2,841,293	3,020,269	202,417	121,637	63.6	8,542,836	3,849,947	735	163	441	32.9
	1954	9,906	2,557,100	2,727,060	181,969	108,167	61.9	7,662,135	3,360,010	744	369	367	24.8
	Reading 1955	1,304	340,632	343,400	11,823	12,883	59.5	1,057,690	540,564	154	9	24	12.8
	1954	1,305	311,342	316,820	13,563	11,986	59.8	953,499	475,698	168	42	18	7.9
	Western Maryland 1955	847	163,926	170,333	9,589	6,422	60.1	542,140	295,934	35	..	..	..
	1954	857	154,305	164,006	10,257	5,783	62.7	476,217	263,478	61	27	2	2.2
Pocahontas Region	Chesapeake & Ohio 1955	5,046	1,436,863	1,458,681	43,282	59,176	57.8	5,001,711	2,737,122	368	29	189	32.3
	1954	5,023	1,149,526	1,170,076	28,448	45,599	56.8	3,715,034	1,994,791	365	93	154	25.2
	Norfolk & Western 1955	2,110	662,556	707,555	55,627	32,301	59.7	2,908,742	1,575,894	223	27	25	9.1
	1954	2,113	587,600	617,412	41,635	25,759	59.2	2,281,916	1,211,606	204	51	23	8.3
Southern Region	Atlantic Coast Line 1955	5,334	889,589	889,589	10,316	29,412	58.2	2,176,497	975,404	237	..	5	2.1
	1954	5,354	850,260	850,260	10,286	27,537	56.5	2,042,259	884,533	238	..	7	2.9
	Central of Georgia 1955	1,731	197,947	197,973	2,375	8,488	69.6	572,350	276,840	71	..	3	4.1
	1954	1,731	204,377	204,404	2,661	7,658	67.3	521,488	245,729	69	..	3	4.2
	Gulf, Mobile & Ohio 1955	2,717	287,525	287,525	215	17,383	71.1	1,143,039	548,418	85	..	4	4.5
	1954	2,718	302,764	302,764	255	15,940	64.7	1,104,373	497,159	87	..	2	2.2
	Illinois Central 1955	6,539	1,289,858	1,291,043	39,595	52,537	64.4	3,707,932	1,701,525	459	71	193	26.7
	1954	6,537	1,322,659	1,324,390	44,160	47,342	62.2	3,385,747	1,508,336	500	61	74	11.7
	Louisville & Nashville 1955	4,715	402,033	404,095	7,355	15,811	61.8	1,193,570	595,269	174	47	7	3.1
	1954	4,722	870,830	885,877	17,083	30,309	61.8	2,258,706	1,114,640	227	82	37	10.7
	Nash., Chatt. & St. Louis 1955	1,043	83,730	85,944	1,921	2,837	70.4	182,649	84,482	49	..	4	7.5
	1954	1,032	195,559	201,320	5,253	6,528	64.6	450,122	205,014	47	..	6	11.3
	Seaboard Air Line 1955	4,053	670,390	670,390	1,935	27,910	62.5	2,010,731	882,976	141	..	7	4.7
	1954	4,067	669,242	669,242	3,282	27,138	60.7	1,993,458	872,644	141	..	9	6.0
	Southern 1955	6,264	991,270	991,340	14,014	47,324	68.2	3,048,875	1,393,562	286	..	4	1.4
	1954	6,262	950,156	950,212	11,819	39,854	65.2	2,611,018	1,146,329	272	..	2	.7
Northwestern Region	Chicago & North Western 1955	7,848	718,502	720,053	9,552	30,678	66.5	2,023,644	935,679	140	25	33	16.7
	1954	7,850	703,552	705,886	10,949	27,595	65.0	1,848,199	855,445	175	40	91	29.7
	Chicago Great Western 1955	1,437	140,122	140,122	177	8,025	70.6	522,824	238,748	29	..	4	12.1
	1954	1,437	135,700	135,700	184	7,692	68.0	511,585	228,553	30	..	3	9.1
	Chic., Milw., St. P. & Pac. 1955	10,633	1,002,748	1,019,680	20,869	42,240	64.3	2,875,265	1,260,007	258	53	23	6.9
	1954	10,631	982,090	997,861	24,420	41,112	64.2	2,786,544	1,219,940	302	102	41	9.2
	Chic., St. P., Minn. & Omaha 1955	1,606	172,387	173,867	5,595	5,695	63.7	397,454	169,254	58	..	16	21.6
	1954	1,606	167,076	168,687	4,951	5,093	64.8	352,168	150,763	62	7	22	24.2
	Duluth, Missabe & Iron Range 1955	569	30,306	30,322	427	485	56.4	36,161	17,253	45	12	7	10.9
	1954	566	33,142	33,200	472	465	51.2	42,691	18,455	34	13	22	31.9
	Great Northern 1955	8,270	1,146,487	1,152,689	31,932	40,872	65.7	2,849,316	1,266,664	218	169	43	10.0
	1954	8,293	1,004,015	1,009,881	29,194	38,889	66.9	2,693,780	1,220,081	254	202	49	9.7
	Minneap., St. P. & S. Ste. M. 1955	4,171	386,549	388,998	2,425	12,738	69.1	822,076	371,582	83	11	15	13.8
	1954	4,169	372,533	374,811	4,050	11,709	71.2	727,426	341,299	96	4	18	15.3
	Northern Pacific 1955	6,570	917,834	943,508	32,426	31,256	62.1	2,429,738	1,040,640	284	25	65	17.4
	1954	6,570	820,107	844,855	32,501	32,398	66.5	2,197,018	949,958	295	55	64	15.5
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.) 1955	13,098	2,406,292	2,508,889	59,256	114,434	64.5	7,679,315	2,919,749	514	86	29	4.6
	1954	13,067	2,242,614	2,296,977	58,583	100,311	64.0	6,758,289	2,565,322	509	150	41	5.9
	Chic., Burl. & Quincy 1955	8,808	1,152,296	1,146,538	43,425	48,184	68.5	3,074,060	1,343,293	236	45	22	7.3
	1954	8,832	1,110,029	1,108,717	37,313	46,531	67.9	3,018,909	1,333,607	268	71	52	13.3
	Chic., Rock I. & Pac. 1955	7,904	913,356	911,902	1,681	37,443	63.7	2,597,019	1,070,619	169	..	6	3.4
	1954	7,861	944,505	945,816	1,750	36,344	60.3	2,606,886	1,045,293	173	1	9	4.9
	Denver & R. G. Wn. 1955	2,165	295,612	316,671	31,505	14,703	69.1	1,023,173	490,354	56	43	27	21.4
	1954	2,164	268,371	284,423	33,563	12,633	69.0	864,082	403,735	55	60	23	16.7
	Southern Pacific 1955	8,072	2,225,924	2,341,478	211,737	101,380	65.0	6,862,837	2,859,304	606	75	113	14.2
	1954	8,065	1,997,145	2,092,439	229,800	88,762	63.3	6,154,117	2,553,406	537	157	132	16.0
	Union Pacific 1955	9,813	2,312,535	2,359,024	104,363	104,527	66.4	6,912,186	2,930,008	408	220	119	15.9
	1954	9,816	2,246,990	2,295,252	132,361	96,054	63.4	6,508,931	2,654,036	484	287	83	9.7
	Western Pacific 1955	1,190	234,229	244,711	19,438	10,653	68.8	700,103	316,217	43	..	..	..
	1954	1,190	202,286	203,725	18,271	9,234	70.4	597,700	271,281	40	4	3	6.4
Southwestern Region	International Gt.-Northern* 1955	1,104	139,695	139,695	.....	5,853	63.5	430,490	196,016	42	..	1	2.3
	1954	1,103	146,175	146,175	.....	5,580	63.5	391,044	175,980	44	..	2	4.3
	Kansas City Southern 1955	886	161,937	161,991	45	9,351	68.7	653,255	306,921	25	..	3	10.7
	1954	886	151,811	151,815	248	8,224	65.6	581,088	261,194	26	..	1	3.7
	Mo.-Kans.-Texas Lines 1955	3,230	344,493	344,493	3,766	14,411	64.5	939,286	396,109	85	..	1	1.2
	1954	3,230	357,590	357,590	4,105	13,885	63.8	899,046	380,395	87	..	1	1.1
	Missouri Pacific* 1955	6,895	991,931	991,931	10,842	45,241	66.8	3,056,455	1,354,496	217	43	88	25.3
	1954	6,904	1,117,181	1,119,117	12,799	43,839	65.1	2,958,442	1,271,677	262	39	82	21.4
	Texas & Pacific 1955	1,822	338,630	338,630	3,392	15,426	62.3	1,106,648	419,667	58	..	1	1.7
	1954	1,827	320,288	320,288	3,616	14,202	61.1	1,021,487	379,097	61	..	..	..
	St. Louis-San Francisco 1955	4,564	616,390	617,831	5,828	25,863	68.2	1,689,319	761,464	115	..	6	5.0
	1954	4,564	635,366	637,292	6,188	24,142	62.8	1,682,220	740,449	136	..	5	3.5
	St. Louis Sout w. Lines 1955	1,554	315,909	315,937	1,546	16,290	71.4	959,428	428,878	56	1	16	21.9
	1954	1,555	300,175	300,189	4,020	14,090	69.3	880,212	393,467	57	14	4	5.3
	Texas & New Orleans 1955	4,302	703,799	703,799	7,483	29,694	64.2	2,058,958	879,442	136	..	3	2.2
	1954	4,279	700,657	700,657	9,129	26,977	62.0	1,907,017	798,268	150	..	47	23.9

For the Month of March 1955 Compared with March 1954

Region	Road	Year	Freight cars on line: Home	Foreign	Total	Per Cent B.O.	G.t.m.per train-hr. excl.locos and tenders	G.t.m.per train-mi. excl.locos and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd car-mile	Net ton-mi. per car-day	Car-miles per car-day	Net daily ton-mi. per coed-mi.	Train-miles per train-hour	Miles per loco. per day
New Eng. Region	Boston & Maine	1955	2,668	7,588	10,256	5.1	39,908	2,555	977	24.9	775	48.7	5,187	15.7	128.6
		1954	2,921	7,243	10,164	3.3	41,258	2,457	925	24.6	786	49.7	4,768	16.8	124.9
	N. Y., N. H. & Hfd	1955	2,617	14,582	17,199	1.8	43,988	2,578	1,012	24.2	549	34.0	5,562	17.1	134.8
		1954	3,017	13,109	16,126	2.5	42,925	2,518	980	24.0	580	36.3	5,338	17.0	132.8
Great Lakes Region	Delaware & Hudson	1955	5,927	4,651	10,578	6.0	65,413	3,464	1,699	34.2	971	43.5	13,100	19.0	168.6
		1954	7,792	3,941	11,733	4.5	61,296	3,249	1,582	34.1	844	38.6	12,603	19.0	167.5
	Del., Lack. & Western	1955	6,372	9,450	15,822	2.9	50,855	2,860	1,196	27.1	658	36.7	11,394	18.1	180.8
		1954	8,947	7,343	16,290	4.7	46,801	2,646	1,088	26.9	558	32.0	9,532	18.0	161.8
	Erie	1955	8,931	15,307	24,238	5.2	64,866	3,362	1,323	23.9	963	59.1	10,872	19.5	129.8
		1954	12,981	13,138	26,119	4.5	63,092	3,397	1,353	24.2	869	51.9	10,227	18.7	116.4
	Grand Trunk Western	1955	3,589	9,238	12,827	7.5	51,163	2,384	929	27.6	656	39.7	8,727	21.6	127.3
		1954	3,992	7,582	11,574	4.3	50,642	2,360	924	28.1	658	40.5	8,165	21.5	120.6
	Lehigh Valley	1955	9,807	7,070	16,877	3.9	69,593	3,344	1,485	29.6	590	30.3	8,691	20.9	219.1
		1954	9,577	6,425	16,002	5.4	64,852	3,208	1,395	29.3	575	30.6	7,971	20.4	219.4
	New York Central	1955	67,921	81,213	149,134	6.8	50,122	2,815	1,215	30.3	664	35.8	9,463	18.0	135.8
		1954	87,073	72,423	159,496	9.3	49,853	2,848	1,220	30.3	564	30.9	8,552	17.7	101.1
	New York, Chic. & St. L.	1955	9,029	15,866	24,895	8.0	50,167	2,826	1,239	30.4	1,221	62.7	13,444	18.1	131.1
		1954	10,558	11,942	22,500	6.8	49,774	2,725	1,139	29.2	1,072	59.1	11,327	18.5	100.0
	Pitts. & Lake Erie	1955	7,455	6,103	13,558	7.6	59,924	4,021	2,514	54.5	362	9.9	23,518	15.0	116.1
		1954	9,348	5,581	14,929	5.4	59,922	3,850	2,292	53.0	304	9.4	19,005	15.6	61.8
	Wabash	1955	8,303	10,601	18,904	7.6	62,999	2,867	1,073	24.1	1,017	65.0	8,025	22.1	185.9
		1954	9,907	9,409	19,316	7.3	65,008	2,811	1,062	24.7	932	58.9	7,552	23.3	168.7
Central Eastern Region	Baltimore & Ohio	1955	55,460	43,433	98,893	15.5	48,284	3,087	1,454	35.9	733	33.1	11,743	15.9	114.1
		1954	62,549	35,410	97,959	8.9	46,783	2,992	1,365	33.2	639	31.7	9,844	15.8	88.1
	Bessemer & Lake Erie	1955	5,931	798	6,729	20.3	73,649	5,207	3,418	73.9	498	10.3	17,688	14.6	86.6
		1954	9,440	482	9,922	7.0	63,150	3,922	2,408	67.6	299	7.4	13,910	16.7	88.0
	Central RR Co. of New Jersey	1955	5,440	9,029	14,469	9.8	40,695	2,879	1,424	37.4	388	15.9	9,165	14.6	83.0
		1954	5,640	7,817	13,457	12.0	39,341	2,911	1,464	37.7	405	17.1	9,160	14.2	83.1
	Chicago & Eastern Ill.	1955	3,197	3,872	7,069	6.9	51,408	3,075	1,448	33.4	846	39.1	6,336	16.8	148.9
		1954	3,541	2,747	6,288	5.0	48,675	2,778	1,319	33.2	814	38.4	5,826	17.6	152.6
	Elgin, Joliet & Eastern	1955	7,603	8,527	16,130	8.8	22,371	2,728	1,481	43.8	242	8.8	16,362	8.5	89.0
		1954	6,854	7,273	14,127	5.6	21,864	2,603	1,384	42.1	255	9.6	15,727	8.8	92.4
	Penns.lvania System	1955	116,933	86,850	203,783	14.7	53,381	3,081	1,389	31.7	610	30.3	12,555	17.8	85.1
		1954	109,373	93,754	203,127	9.5	54,435	3,073	1,348	31.1	533	27.7	10,942	18.2	69.6
	Reading	1955	18,295	14,724	33,019	6.2	47,277	3,107	1,588	42.0	528	21.1	13,372	15.2	70.1
		1954	21,738	13,279	35,017	5.6	43,942	3,066	1,530	39.7	444	18.7	11,759	14.3	56.9
	Western Maryland	1955	5,833	2,588	8,421	5.8	46,933	3,346	1,826	46.1	1,018	36.7	11,271	14.2	188.3
		1954	8,988	2,702	11,690	5.2	44,820	3,132	1,733	45.6	746	26.1	9,917	14.5	68.9
Pocahontas Region	Chesapeake & Ohio	1955	53,401	31,542	84,943	4.3	63,454	3,501	1,916	46.3	1,048	39.2	17,498	18.2	88.1
		1954	61,542	20,079	81,621	3.2	60,736	3,246	1,743	43.7	806	32.4	12,811	18.8	69.0
	Norfolk & Western	1955	32,993	7,354	40,347	2.4	75,262	4,530	2,454	48.8	1,198	41.1	24,093	17.1	99.7
		1954	43,546	6,036	49,582	2.6	67,594	3,959	2,102	47.0	790	28.4	18,497	17.4	84.5
Southern Region	Atlantic Coast Line	1955	19,514	18,259	37,773	3.6	43,300	2,452	1,099	33.2	834	43.2	5,899	17.7	133.3
		1954	21,358	15,066	36,424	2.3	41,801	2,419	1,048	32.1	765	42.2	5,329	17.4	126.5
	Central of Georgia	1955	3,041	7,415	10,456	4.1	49,490	2,903	1,404	32.6	889	39.1	5,159	17.1	95.3
		1954	4,078	5,079	9,157	3.9	46,445	2,563	1,208	32.1	852	39.5	4,579	18.2	103.2
	Gulf, Mobile & Ohio	1955	5,700	11,666	17,366	2.6	77,139	3,984	1,911	31.5	1,103	49.2	6,511	19.4	112.6
		1954	6,511	8,692	15,203	4.0	74,812	3,650	1,643	31.2	1,035	51.3	5,900	20.5	117.2
	Illinois Central	1955	27,673	23,863	51,536	2.3	48,804	2,909	1,335	32.4	1,075	51.5	8,394	17.0	64.9
		1954	35,237	18,232	53,469	3.2	45,005	2,593	1,155	31.9	907	45.8	7,443	17.6	74.8
	Louisville & Nashville	1955	35,448	4,969	40,417	3.9	49,844	2,976	1,484	37.7	443	19.0	4,073	16.8	62.6
		1954	42,572	11,446	54,018	2.9	45,036	2,601	1,283	36.8	669	29.4	7,615	17.4	91.8
	Nash., Chatt. & St. Louis	1955	4,073	2,754	6,827	3.7	42,795	2,183	1,010	29.8	399	19.0	2,613	19.6	56.8
		1954	4,090	3,768	7,858	2.9	44,351	2,313	1,054	31.4	824	40.6	6,408	19.3	134.1
	Seaboard Air Line	1955	12,848	14,309	27,157	2.7	54,747	3,049	1,339	31.6	1,035	52.3	7,028	18.3	174.0
		1954	14,995	13,676	28,671	1.7	53,887	3,033	1,328	32.2	981	50.3	6,922	18.1	172.0
	Southern	1955	18,772	26,376	45,148	4.8	52,405	3,097	1,416	29.4	1,015	50.6	7,177	17.0	124.3
		1954	19,887	23,226	43,113	3.2	48,718	2,758	1,211	28.8	833	44.4	5,905	17.7	125.5
Northwestern Region	Chicago & North Western	1955	17,862	24,977	42,839	4.6	51,887	2,863	1,324	30.5	684	33.7	3,846	18.4	130.0
		1954	22,475	22,771	45,246	5.8	47,335	2,700	1,250	31.0	589	29.3	3,515	18.0	83.7
	Chicago Great Western	1955	1,888	4,204	6,092	3.2	72,786	3,738	1,707	29.8	1,240	59.0	5,359	19.5	143.4
		1954	2,131	3,579	5,710	3.6	72,095	3,784	1,690	29.7	1,287	63.7	5,131	19.1	138.8
	Chic., Milw., St. P. & Pac.	1955	34,970	28,961	63,931	6.0	54,958	2,880	1,262	29.8	624	32.6	3,823	19.2	104.9
		1954	38,530	26,121	64,651	6.4	52,350	2,848	1,247	29.7	599	31.4	3,702	18.5	79.5
	Chic., St. P., Minn. & Omaha	1955	1,156	7,087	8,243	4.1	33,703	2,320	988	29.7	626	33.0	3,399	14.6	89.2
		1954	1,170	6,819	7,989	5.0	33,604	2,146	919	29.6	598	31.2	3,028	15.9	71.4
	Duluth, Missabe & Iron Range	1955	14,579	562	15,141	1.1	17,893	1,268	605	35.6	37	1.8	978	15.0	18.4
		1954	14,782	520	15,302	1.7	19,282	1,365	590	38.1	38	2.0	1,052	15.0	16.8
	Great Northern	1955	22,437	19,099	41,536	3.1	49,992	2,506	1,114	31.0	949	46.6	4,941	20.1	94.6
		1954	26,168	17,983	44,151	3.4	50,660	2,695	1,221	31.4	847	40.4	4,746	18.9	73.1
	Minneap., St. P. & S. Ste. M.	1955	7,090	6,456	13,546	7.0	44,866	2,141	968	29.2	891	44.2	2,874	21.1	118.8
		1954	7,953	5,632	13,585	5.6	40,321	1,954	917	29.1	800	38.5	2,641	20.6	111.5
	Northern Pacific	1955	19,758	18,198	37,956	4.6	53,932	2,661	1,140	33.3	901	43.6	5,109	20.5	92.2
		1954	22,842	12,731	35,573	5.6	51,944	2,701	1,168	29.3	838	43.0	4,664	19.4	73.7
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1955	52,451	35,556	88,007	3.8	74,280	3,204	1,218	25.5	1,088	66.1	7,191	23.3	140.1
		1954	56,586	32,711	89,297	3.0	71,261	3,022	1,147	25.6	946	57.8	6,333	23.6	114.4
	Chic., Burl. & Quincy	1955	23,052	21,371	44,423	3.3	57,168	2,672	1,168	27.9	979	51.3	4,920	21.4	125.9
		1954	23,231	18,917	42,148	2.9	56,825	2,724	1,203	28.7	1,016	52.2	4,871	20.9	103.0
	Chic., Rock I. & Pac.	1955	13,827	16,534	30,361	4.3	57,482	2,850	1,175	28.6	1,122	61.6	4,369	20.2	177.0
		1954	14,120	20,197	34,317	4.8	54,801	2,765	1,109	28.8	956	55.1	4,289	19.9	177.0
	Denver & R. G. Wn.	1955	8,300	6,212	14,512	3.5	67,805	3,459	1,663	33.4	1,137	49.4	7,306	19.6	93.7
		1954	9,314	4,077	13,391	3.7	64,793	3,226	1,507	32.0	997	45.2	6,018	20.1	77.9
	Southern Pacific	1955	31,939	42,365	74,304	1.8	60,202	3,112	1,297	28.2	1,291	70.4	11,426	19.5	113.6
		1954	34,231	49,930	84,161	1.7	60,340	3,106	1,288	28.8	1,091	59.9	10,213	19.6	97.8
	Union Pacific	1955	30,486	34,110	64,596	2.6	77,547	3,018	1,279	28.0	1,470	79.0	9,632	25.9	106.7
		1954	34,162	29,310	63,472	2.5	75,057	2,933	1,196	27.6	1,373	78.4	8,722	25.9	93.8
	Western Pacific	1955	2,523	3,844	6,367	2.0	70,789	3,033	1,370	29.7	1,736	85.0	8,572	23.7	203.7
		1954	3,013	2,621	5,634	5.3	75,706	2,975	1,350	29.4	1,628	78.7	7,354	25.6	162.4
Southwestern Region	International-Gt. Northern*	1955	994	5,266	6,260	4.7	66,097	3,105	1,414	33.5	989	46.5	5,728	21.4	109.1
		1954	890	5,315	6,205	4.1	54,829	2,682	1,207	31.5	921	46.0	5,147	20.5	108.1
	Kansas City Southern	1955	1,231	6,122	7,353	4.1	85,853	4,057	1,906	32.8	1,335	59.2	11,175	21.3	206.6
		1954	1,224	5,583	6,807	3.0	80,372	3,837	1,725	31.8	1,197	57.4	9,510	21.0	201.8
	Mo.-Kans.-Texas Lines	1955	4,975	5,887	10,862	9.3	57,127	2,733	1,153	27.5	1,106	62.4	3,956	21.0	136.6
		1954	5,389	6,006	11,395	5.7	54,320	2,520	1,066	27.4	1,074	61.5	3,799	21.6	142.2
	Missouri Pacific*	1955	19,744	17,882	37,626	2.4	69,993	3,090	1,369	29.9	1,149	57.5	6,337	22.7	99.4
		1954	20,283	14,450	34,733	3.0	60,024	2,658	1,142	29.0	1,195	63.3	5,942	22.7	100.9
	Texas & Pacific	1955	3,365	6,300	9,665	2.4	72,926	3,278	1,243	27.2	1,430	84.4	7,430	22.3	194.7
		1954	3,635	6,016	9,651	4.3	72,714	3,195	1,186	26.7	1,253	76.9	6,693	22.8	179.6
	St. Louis-San Francisco	1955	13,641	11,540	25,181	3.2	52,632	2,745	1,237	29.4	980	48.8	5,382	19.2	183.3
		1954	17,084	11,297	28,381	2.4	50,616	2,652	1,167	30.7	807	41.9	5,233	19.1	170.3
	St. Louis Southw. Lines	1955	2,076	5,073	7,149	1.4	62,155	3,040	1,359	26.3	1,899	101.0	8,903	20.5	150.6
		1954	2,726	3,845	6,571	1.9	60,083	2,935	1,312	27.9	1,875	96.8	8,162	20.5	143.1
	Texas & New Orleans	1955	6,624	14,875	21,499	2.7	61,894	2,946	1,258	29.6	1,301	68.4	6,594	21.2	177.3
		1954	7,265	14,013	21,278	1.5	55,051	2,741	1,147	29.6	1,165	63.4	6,018	20.2	121.9

*Report of trustee or trustees.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

Current Publications

PERIODICALS

THE SPERRY REVIEW. Annual Statistical Issue, March 1955. Sperry Rail Service, Danbury, Conn. Free.

Progressively effective railroad maintenance techniques continue to improve physical condition of American and Canadian railroad track, according to Sperry's report on the state of the nation's rail. The quarterly publication analyzes and interprets reports from Sperry Rail Service's 17 detector cars, which last year tested 156,000 miles of track and located 56,623 defects, a slight decrease from the 57,867 found in 1953. Interesting disclosure was the increase in the number of small defects detected. The gain is ascribed to the tendency of railroads to test more frequently and to replace rails before defects have a chance to grow to potentially dangerous proportions.

Other data, involving service rail failures, were compiled by Sperry Quality Control, a cooperative project in which railroads tested by Sperry participated during 1954. This exchange of service failure data facilitated defective rail failure analysis to be made on the basis of 120,000 miles of tested track.

Ultrasonic equipment and methods utilized by the Missouri Pacific railroad to cut costs of inspecting railroad crossings, buried track, rail joints, and switches are described in an article by A. B. Chaney, assistant chief engineer of the MP.

The desirability of broadening perspectives of employees beyond their occupational specialties is discussed by guest editor B. R. Meyers, chief engineer of the Chicago & North Western.

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SYMPOSIUM: MASS RAPID TRANSIT FOR LOS ANGELES. SC Engineer, March 1955, pp. 13-25. SC Engineer, 3518 University ave., Los Angeles 7. Reprints, 25¢.

Students of the School of Engineering of the University of Southern California, who publish this magazine, have prepared this symposium, which includes an historical summary of transit facilities, planning, and previous reports made on the subject; a discussion of problems faced by transportation engineers engaged in studying Los Angeles transit; and a technical evaluation of the most recent advances in the design, construction and operation of monorail railways.

ANNUALS

1955 SURVEY OF DIESEL-ELECTRIC MOTIVE POWER IN RAILWAY SERVICE and NEW 1954 INSTALLATIONS OF DIESEL-ELECTRIC MOTIVE POWER. 18 pages. Simmons-Boardman Publishing Corporation, 30 Church st., New York 7. $5.

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YEARBOOK OF RAILROAD INFORMATION, 1955 Edition. 100 pages. Eastern Railroad Presidents Conference, 143 Liberty st., New York 6. Free.

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INTERNATIONAL RAILWAY STATISTICS, Year 1953. 158 pages. General Secretariat of International Union of Railways, 10, Rue de Prony, Paris XVII, France.

FILM

THE TIME HAS COME. 16mm, 15min, sound, black and white. Clark Equipment Company, Sales Promotion department, Industrial Truck division, Battle Creek, Mich. Available without charge.

Prints are now available of a motion picture on the Clark Mobilvan System —a new method of transporting freight —based on use of a lightweight van 17 ft long, 8 ft wide and 8 ft high. The "Mobilvan" is designed with automatic locking devices that enable it to be fastened securely to the bed of a railroad flat car or the chassis of a flatbed highway truck.

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BOOKS

DIESEL ENGINE PROGRESS. 104 pages, illustrations. Tothill Press, Ltd., 33 Tothill st., Westminster, London, S.W.1, England. 5 shillings.

A survey of the world status of rail traction engines and the largest marine and stationary types, published on the occasion of the International Internal Combustion Engine Congress at The Hague, May 23-28. In addition to descriptions of various types of engines, there are directories of the principal diesel engine and gas turbine manufacturers throughout the world.

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RAILROAD ACCOUNTING AND STATISTICS, by Edward H. Bunnell. 272 pages, illustrations. Watson Publications, Inc., 201 N. Wells st., Chicago 6. $6.

This book combines data on railroad accounting and statistics with a dissertation on the role of accounting in railroading. Important phases of accounting, statistics and record keeping are explained and related to practical applications.

PAMPHLETS

THE TRAIN TO YESTERDAY, by Thomas T. Taber. 18 pages, illustrations, maps. Railroadians of America, H. L. Tilton, treasurer, 761 West Inman ave., Rahway, N.J. $1.

Dedicated to the Durango-Silverton narrow-gage line of the Denver & Rio Grande Western, this blue and silver pamphlet contains numerous photographs. Because of its large number of tourists, the railroad will be operated every day of the week during the 1955 summer season, giving the public an opportunity to ride this last passenger-carrying 3-ft gage system in the United States.

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THE ADVENTURES OF RIPP VANN TWINKLE, by Mike Denyes. 16 pages, illustrations. Enterprise Publications, 11 North Wacker drive, Chicago 6. Single copies, 15¢; quantity discounts.

Explains in easy-to-understand words and pictures that automation is nothing new. It merely means increased industrial productivity, and has been around and in use in some form for centuries, even though the word itself is new to many people. The booklet helps an employee see the importance of automation to his company in keeping up with and ahead of competition, to insure his job and the future of his company. In a series of dreams about textiles, transportation, communication and steel production, to name a few, Ripp sees that the result is always the same—machines make jobs. And by his look at the past Ripp also realizes that *automation is not new;* we have had it in many forms ever since the wheel was invented.

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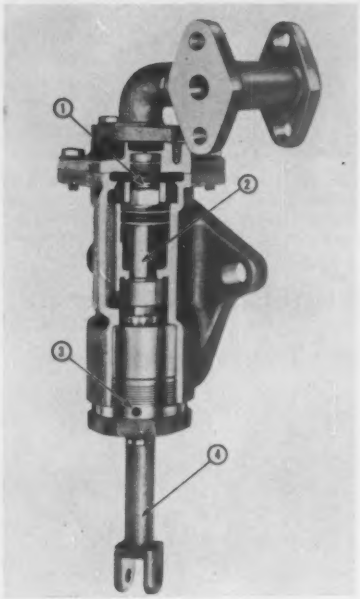
What's New in Products



Brake Cylinder Release Valve

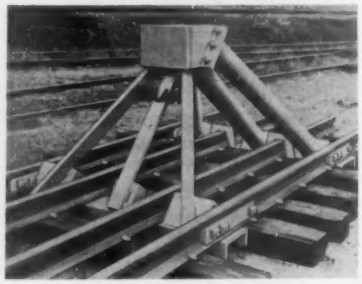
When brakes are bled off for switching on a car equipped with the Caco brake-cylinder release valve, the combined auxiliary and emergency reservoir remains charged. This reduces yard time by eliminating need for bleeding the entire air-brake system to keep the brakes released. When these cars are reassembled into a train, less time is required for charging because little air is needed to bring the reservoirs up to pressure. Designed for application to the AB pipe bracket, this valve is operated by a pull rod like the standard release rod.

To bleed a car it is only necessary to pull the release rod, hold it momentarily, and go on to the next car. Potential brake failures caused by wedging the AB release rod in the open position are eliminated. When the rod is pulled, the Caco brake-cylinder release valve breaks the communication between the combined reservoirs and the brake cylinder through the AB valve. Only the cylinder pressure is bled off: the combined reservoir pressure is retained.

When a car equipped with the cylinder release valve is put back in a train after bleeding, restoration of normal brake-pipe pressure resets the release valve at the same time as or just after the control valve in the AB valve goes to the release position. Only a short time is then needed to bring reservoir pressure to a point where the brake is released or ready for a brake test. The Caco brake-cylinder release valve does not affect operation of the AB valve. Position of the retainer valve, stopping up of a retainer valve, or functioning of the AB valve do not affect the cylinder release valve's operation.

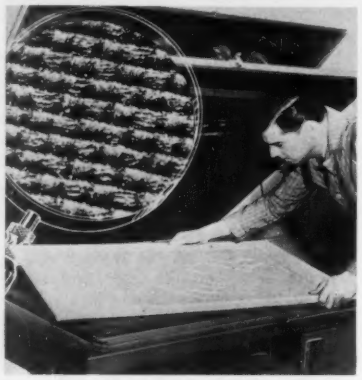
Brake-pipe pressure on top of the floating piston *1* keeps the differential valve assembly *2* positioned so there is a normal connection between the brake-cylinder port and the brake cylinder. Reservoirs and cylinder are directly connected and remain this way even when brake-pipe pressure is released, because reservoir pressure is balanced on both sides of the large differential piston and then only acts to hold the small differential piston against its lower seat. When release rod *4* is pulled, it moves the differential valve up against the upper seat of the small piston. The valve assembly is then held here by reservoir pressure acting on the bottom of the large differential piston, while the brake cylinder and the passages of this valve vent to the atmosphere down past the differential valve guide and through the ports *3*. When recharging, the slight excess of brake-pipe pressure over that in the reservoirs necessary to move the AB control valve to release also moves the differential valve to its normal running position.

All metal parts of the valve except the compression spring are of brass or bronze. Pistons have synthetic rubber seal rings. The valve is lubricated during factory assembly and a wick provides additional lubrication from the floating piston. The valve can be applied to passenger and freight cars. *Crerar, Adams & Co., 1101 West Congress Parkway, Chicago 7* •



New Line of Bumping Posts

Force from heavy blows is said to be dispersed effectively by a combination of bar tension and tubular compression members in a new line of railroad bumping posts. They are constructed of high-carbon steel and employ alloy bolts for anchoring. Loop plates for anchoring the tube members on rails in the center of the track are said to add strength to the unit. A rubber head, providing added shock-absorbing capacity, is available at extra cost. The rubber is 2 in. thick, 40 durometer. Eight models of the bumping post are available; they range in weight from 800 to 2,630 lb. *Nolan Company, Bowerston, Ohio* •



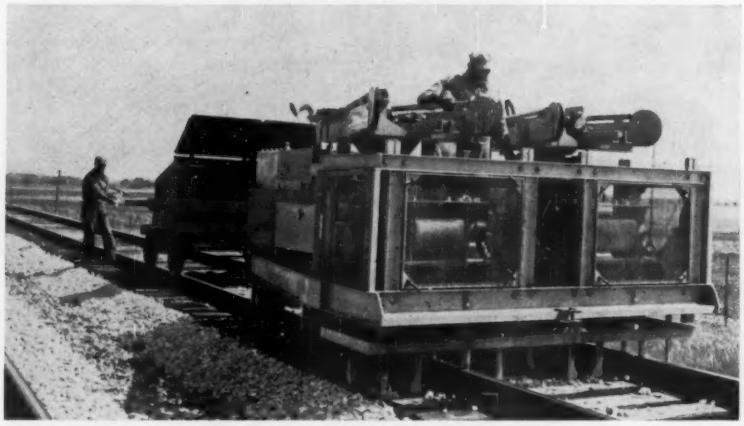
Applicator Diaphragm

A new rubber diaphragm for heat-vacuum applicators simplifies the application of reflective sheeting to embossed signs. The diaphragm, of rough rubber, allows air trapped by raised letters and borders to escape through evenly spaced, microscopic depressions in the surface of the rubber. This diaphragm replaces the seamless muslin or bleeder strips previously used in the applicators. *Minnesota Mining & Manufacturing Co., 900 Fauquier st., St. Paul 6, Minn.* •

Protective Coating

Railroad Cocoon is a sprayable protective coating developed especially to upgrade box and hopper cars for handling Grade A commodities. It not only prepares cars for merchandise service, but can make them suitable for bulk handling of grain, powdered coal and china clay. It is a tough vinyl plastic which is still flexible at temperatures down to 50 deg below zero and is said to be satisfactory up to 180 deg above zero.

The manufacturer reports that the strength and flexibility of this product are such that a coating will not tear or break down under the movement of the car. Excellent adhesion to wood, steel and aluminum is claimed. The film cannot be stripped from a surface after application. Railroad Cocoon is a system of various vinyl resins and low-temperature plasticizers. It is colored white with titanium dioxide pigment to emphasize cleanliness and enable the sprayer to see what areas he has covered. The pigment will not react with the commodities shipped. Railroad Cocoon is manufactured by R. M. Hollingshead Corporation and supplied in 5- and 50-gal containers. Distributors: *Brandon Equipment Company, 332 S. Michigan ave., Chicago* •



Automatic Gang Tamper

Employing an entirely different principle of vibration and a completely automatic tamping cycle is the Nordberg Automatic Gang Tamper, now in production. The machine is equipped with split tamping heads so that it can be used for either out-of-face or spot surfacing.

The unit, weighing 16,000 lb and powered by a 32-hp air-cooled gasoline engine, is 14 ft long, 9 ft 6 in. wide, and extends 6 ft 9 in. above the rail. Power from the four-cylinder engine is transmitted through a fluid coupling to all parts of the machine. A four-speed transmission permits traveling speeds up to 25 mph in either direction, and a separate gearing in a "super low" range is provided for indexing while tamping.

The tamping heads, which can be operated either independently or together, are powered by a V-belt drive from the fluid coupling on the engine. The tamping head assemblies each incorporate a vibrator unit with an eccentrically weighted shaft. The assembly is identical to that used for powering the Rod Deck screens on Nordberg's Screenex machine. The vibrating mechanism is adjustable to give from "light" to "very heavy" vibration.

The tamping heads are held in alinement by heavy leaf springs, one at each corner of each head. Raising of the heads is performed by hydraulic rams, one for each head. The rams are single-acting in that they are used only for raising the head, the fall being by gravity. Each ram is powered by a separate hydraulic pump.

Automatic cycling of the tamping operation is controlled by a 12-volt electrical system employing four banks of relays. The first bank controls the first insertion of the tamper head into the ballast and also the time of vibration in the ballast before the head is lifted. The second and third banks control the second and third insertions into the ballast and the time of vibration before each lift of the head. The fourth bank controls the final lift of the head, then energizes an electromagnetic clutch to start the machine moving to the next tie. The second and third control banks may be bypassed, if desired, so that one, two or three insertions may be selected.

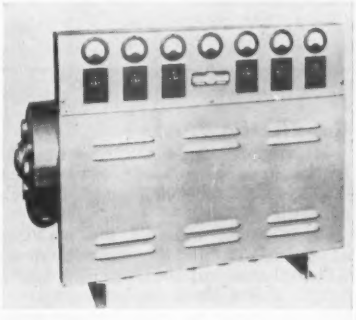
The amount of fall of the tamping heads and the impact with which they strike the ballast can be adjusted. Another adjustment permits varying the vibrating time in the ballast from 0 to 10 sec. The intensity of vibration can also be varied by changing the eccentric weight. A fourth adjustment permits varying the angle of the tamping bars to the tie.

Three different types of tamping bars are available. A wide bar (6-in. face) is for making high lifts in any kind of ballast or for moderate raises in small-size ballast. The second bar has a 3-in. face and is recommended for lifts up to 3 in. The third is a spot-surfacing bar, also with a 3-in. face, but with a point 1½ in. long on the end for penetrating purposes. The point is about 1 in. wide where it joins the base of the bar. The latter two types of bars are available in left-hand or right-hand models. With either of the 3-in. sizes the position of the bars with reference to the rail can be varied as much as 2¾ in. in increments of ½ in.

The tamper can be removed from the track onto a previously prepared tie or crib set-off. Four transverse wheels are hinged to special mountings on the underframe of the machine. The wheels are raised and lowered in their mounting by a hydraulic hand pump. When setting the machine off, the wheels are lowered onto the set-off rails, then are used to jack the machine up so that the running wheels will clear the track rails. The unit can then be pushed into the clear. The transverse wheels are mounted so that the set-off rails are at standard gage. *Nordberg Manufacturing Company, South Milwaukee, Wis.* •

Conveyor Coupler

Speedhook has been designed as a universal coupling between the portable sections of roller and gravity-wheel conveyors of all types. These couplers can be applied to existing equipment, and can be installed inside or outside the channel frames. Speedhook is claimed to be stronger than standard couplings. It withstands shock loads and is quick acting. *Speedways Conveyors, Inc., 126 Speedways building, 202 Rhode Island st., Buffalo 13* •



Battery Charger

Lead-acid or nickel-alkaline batteries on six motorized hand trucks can be charged at the same time with the

More New Products

HX6 Charg-O-Matic battery charger. This six-circuit model is intended for central service charging stations. The manufacturer asserts that operation is simple and that there is no danger of overcharging. The control cabinet and motor-generator are supported on a welded I-beam base and are delivered as a package ready to install. Charging cables for each circuit are supplied. The front of the control cabinet is hinged for easy inspection. *Hertner Electric Company, 12690 Elmwood ave., Cleveland 11* •

Electronic Crane Control

Developed primarily as a safety device is a new system which permits workers to attend to a disabled crane without danger from other cranes approaching on the same runway. The system provides electronic control which automatically gives warning of the approach or shuts off the movement of an oncoming crane.

Distance at which the warning or shut-off action is effective is adjustable from 1 to 20 ft with the desired setting made at the time of installation. The equipment consists of a compact receiver and receiver loop for each crane or other fixed location and a portable transmitter with a transmitter loop to be positioned wherever temporary protection is required.

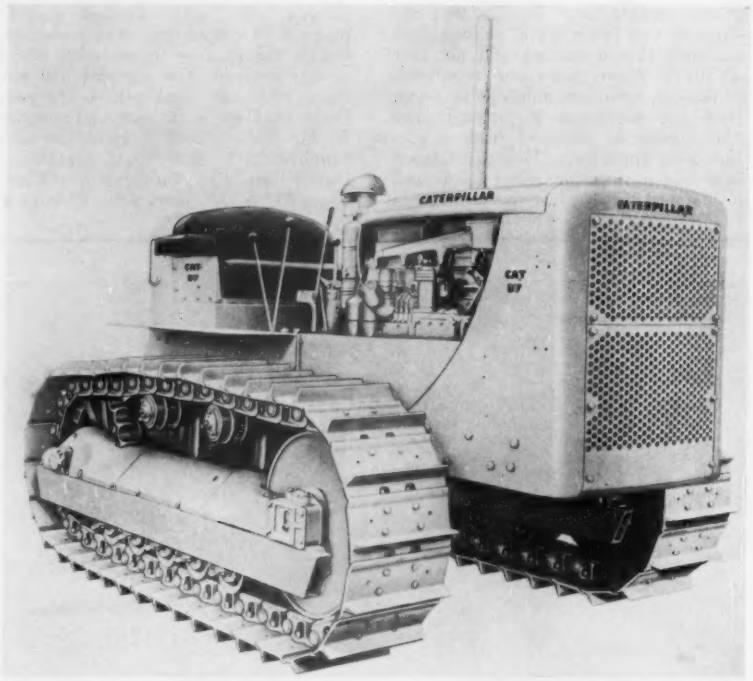
The transmitter and receivers are tuned to the same carrier frequency. All of the equipment is said to be of "fail-safe" design so that any failure of any part will cause a warning signal. A sensitivity control on each receiver determines the distance at which the receiver relay is held energized by the transmitter loop. This provides a flexible field adjustment for setting the warning to become effective at any desired distance. The receivers mounted on the cranes can be powered from the crane trolley circuit. The portable transmitter is battery operated. *Femco, Inc., Irwin, Pa.* •

Gas-Electric Trucks

Heavy-duty gas-electric industrial trucks have been made available in 7,000-, 8,000-, 9,000-, and 10,000-lb capacities.

They round out the maker's line of trucks in the Dynamotive series which also includes models with 4,000-, 5,000-, and 6,000-lb capacities.

According to the manufacturer maintenance costs are low and the units have the long life of a straight electric truck, plus the constant power source of a gasoline engine. *Automatic Transportation Company, 149 West 87 st., Chicago 20* •

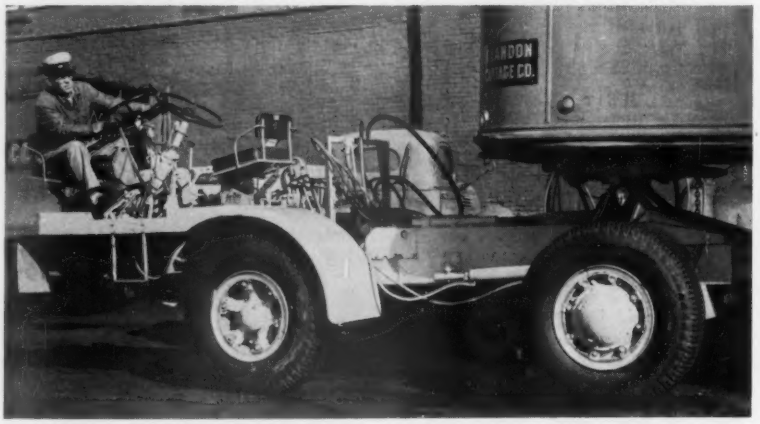


Improved Tractor

The Caterpillar D7 track-type tractor has been improved and redesigned to give increased horsepower and engine speed. The engine now has 128 hp at 1,200 rpm, compared to the 108 hp at 1,000 rpm in the previous model. The maximum drawbar pull is now 28,700 lb, approximately 3,500 lb more than its predecessor.

Another innovation designed to improve operation is an engine balancer which is said to reduce vibration and permit the four-cylinder engine to operate at 1,200 rpm with the smoothness of a six-cylinder design.

Other new major engineering features which reportedly contribute to greater productive capacity in the new D7 include: Redesigned engine block; new fuel-injection system; new starting engine; new radiator; larger fuel tank; new fuel-filter system; redesigned oil-filter-base adapter; and improved air cleaner. *Caterpillar Tractor Company, Peoria, Ill.* •



Truck Trailer "Switcher"

A four-wheel highway trailer "switcher" for loading and unloading piggyback shipments has been developed jointly by Brandon and the American Coleman Company. The Yardmobile has dual driving positions and dual controls to overcome objections to the use of standard highway tractor units for piggyback loading. Operating the Yardmobile, the driver always faces the direction of movement.

Except for a common gear shift lever, all driving controls are dupli-

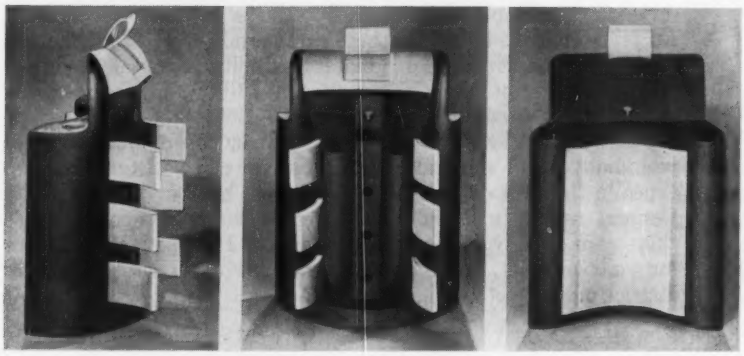
cated at each driving position. Trailer air and vacuum brake controls and a lever for operating the air-actuated king-pin lock and release are on the steering column in easy reach of either seat position. Instruments and the control for the hydraulic fifth wheel are in a panel on the side of the engine compartment (on the driver's left in the illustration).

In "shoving" position (pictured) the driver may use all four wheels for steering. The rear wheels may be power-actuated by a lever while the front wheels are power-actuated by the steering wheel. Unusual maneuverability and a short turning radius result. The hydraulic fifth wheel lift permits movement of trailers without taking time out to wind up their dolly wheels. Four sealed-beam headlights are provided for night operation. The rear lamps are aimed beneath the trailer for maximum visibility of roadway or flat-car deck during the backup movement.

The Yardmobile is driven by a Chrysler 6A 6-cylinder industrial engine through a Chrylser torque converter which reduces the need for shifting except for change of direction or for unusual changes of load, speed or grade. The constant-mesh transmission has five forward speeds enabling the vehicle to travel as fast as 49 mph forward and 6.3 mph in reverse.

The Yardmobile weighs 8,850 lb. It is 15 ft 10½ in. long overall; and 89⅝ in. wide. Road clearance at the lowest point is 13 in. Turning radius is 14 ft 4½ in.

Optional equipment includes a cab and heater. A 12-volt electrical system may also be had instead of the standard 6-volt system. *Brandon Equipment Co., 322 S. Michigan ave., Chicago 4* •

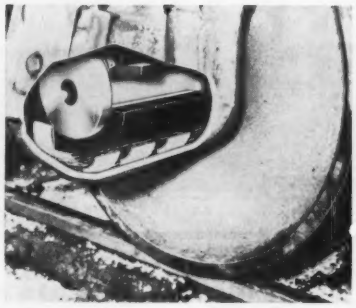


Journal Box Lubricator

Ever-Pac, which provides wick-fed felt-pad lubrication for freight car journals, has a body of synthetic sponge-rubber that forms a sealed oil reservoir in the bottom of the journal box. The rubber pad is said not only to seal the oil supply from dirt, but to feed oil over the journal surface steadily and hold the entire assembly in position even during switching shocks.

The rubber pad of this lubricator is resistant to oil, acids, heat and abrasion. The absorbent felt wick-pad fits over the top surface of the pad and its six wick-ends pass through slots in the pad into a recess on the bottom. This recess holds two pints of oil; an additional two pints are absorbed by the pad and wick during saturation before application.

It is necessary to jack the journal box and remove the bearing and wedge to apply the Ever-Pac, but no mechanical changes in the box are required. Because of its compression fit, the lubricator is said to mold itself against the sides and ends of the box interior so it cannot be dislodged. This is said to prevent loss of oil through the front and rear of the box and to prevent the entry of water and dirt. No seal or special dustguard is required.



Oil is supplied to the reservoir through an oil filler hole in the front of the lubricator below the journal collar. There is three-way oil delivery to the journal—through the wicks, by pumping through three holes under the felt pad, and by the flexing of the entire pad. The constant, cushioned upward pressure on the surface is reported to give an even and controlled oil distribution at all temperatures. Every movement of the box or journal supplies additional lubrication. The lubricator now has AAR approval for limited installation on cars in interchange service. *United States Rubber Company, Rockefeller Center, New York 20* •

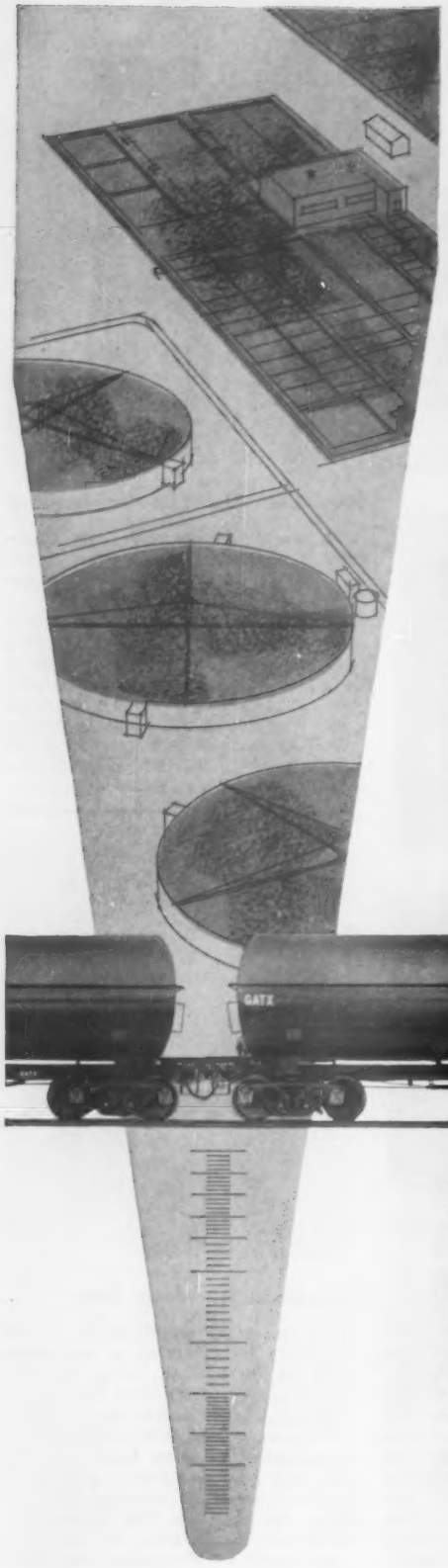
Dry Chemical Fire Extinguisher

A new 10-lb pressurized dry chemical fire extinguisher carries underwriters' approval for a pressure range from 150 to 250 lb.

The unit features a pistol grip trigger release mechanism; a new dust and moisture-proof gage which shows at a glance the unit's charged pressure; and a diffuser horn which gives extra wide coverage of the discharge pattern to make the most efficient use of the dry chemical. *Walter Kidde & Co., Belleville, N.J.* •

Dispenser for Water Cups

A new water-cup dispenser is now available for mounting on any water tank or keg now on the market. The manufacturer states that the size of the unit, No. 7954, has been carefully designed to keep well within the dimensions of all water tanks. An overall hinged lid eliminates possibility of water or moisture entering the sanitary cup chamber. The dispenser is available in all sizes for all Dixie coneshaped and flat-bottom cups. *Dixie Cup Company, Easton, Pa.* •



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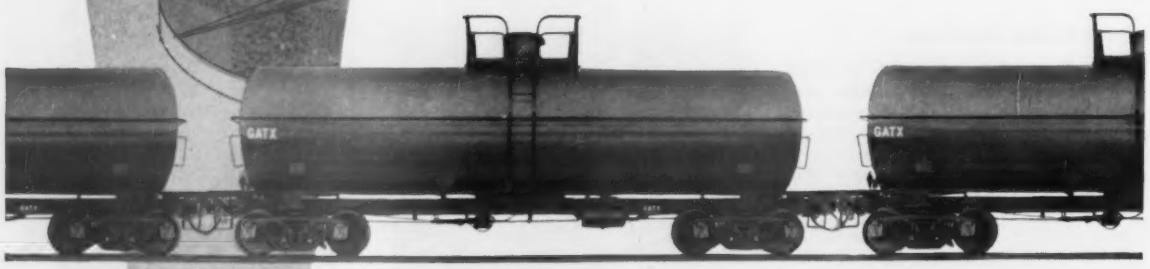
There's a GATX tank car that's built or can be built to meet your bulk liquid shipping needs. You can choose from over 200 types in the fleet of 48,000 cars designed, built and operated by General American. General American's 38 repair shops service these cars quickly and efficiently for you. For the *right* tank car for your product, write or call your nearby General American district office.



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Can You Explain the "Cabinet Report" Simply?

Most informed transportation people know full well that the principal recommendations of the "Cabinet Committee report" are urgently needed to assure the health and future progress of the transportation industry. But the reasons are complex and the story, in detail, is a long one. If the report's recommendations are going to become law, a lot of Americans are going to have to be convinced that these recommendations are a good thing for them personally, and for the nation as a whole. Mighty few of these Americans are going to take the time to master the details of the report. Hence it is up to those who do know the score to exercise all the skill they have to tell the story in the simplest possible terms. Simply, but vividly and dramatically too, if possible.

The primary purpose of the report's recommendations is to end the waste in transportation which, the committee believes, is costing the consuming public "billions of dollars a year." This waste—the committee says in substance—is the result of present-day government treatment of transportation. This treatment could be justified only by the near-monopoly situation in transportation of 40 or 50 years ago, but not by the conditions that exist today.

The basic error in present-day government dealing with transportation is that the "common carriers" are being continued under the same severe regulation to which they were subjected when they had the field to themselves. They are not permitted, easily or quickly, to make the rate changes that would enable them to compete actively with the private and contract carriers, which have mushroomed up all over the place. The principal change that the Cabinet Committee believes government should make in its treatment of transportation is that it should allow common carriers to price their service as low as they like, short of incurring an actual money loss. The contract and private carriers can already do this without asking anybody's consent. The common carriers can't.

What is the difference between "common" carriers and contract and private carriers? A common carrier is a carrier, required by law to haul, up to the limit of its capacity and at any time, any shipment—big or little, convenient or inconvenient, profitable or unprofitable—that anybody wants it to move. And common carriers can charge only those rates that the regulatory authorities permit. These rates have to be made public and must be adhered to, and they have to be the same for all comers. Contract carriers can turn down any traffic they don't want. They can charge anything they like or can get, and they can keep their charges secret. They can charge different rates to different customers for the same service. The private carrier, of course, is a company hauling its own freight in its own vehicles.

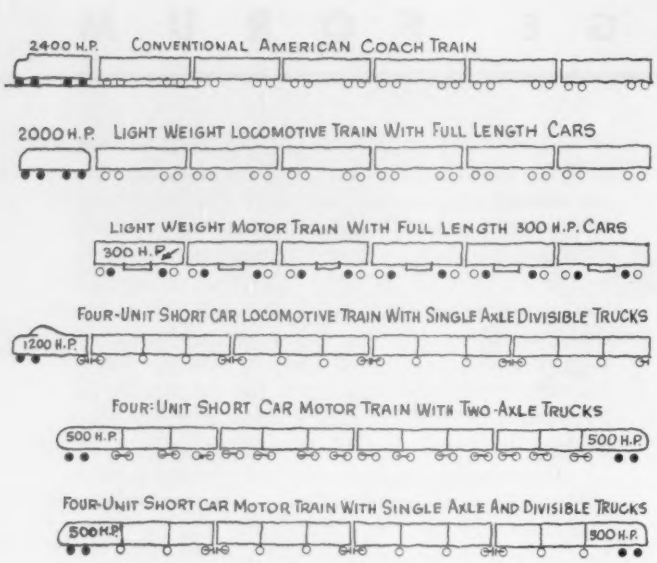
Contract and private carriers perform a valuable public service and nobody is proposing that they should be put out of business. The only contention is that regulation should not be, arbitrarily and for no useful purpose, handicapping the common carriers in competing with other carriers.

A generation ago, severe regulation of common carriers was no insuperable handicap to them—for the simple reason that, practically speaking, contract carriers and private carriers did not exist. But, nowadays, approximately 50 per cent of intercity truck transportation (and the proportion is growing) is provided by unregulated trucks; and 88 per cent of the traffic on the inland waterways is unregulated. Only the railroads are 100 per cent regulated today, just as they were a generation ago.

Giving increased freedom to common carriers in their pricing would enable them to compete with the unregulated carriers for traffic that they can handle at less cost than the other kinds of carriers. If the common carriers were to get this right, then transportation costs to the public would be reduced. The "uncommon carriers" (that is, those which operate under contract or are operated by owners hauling their own products) would not be unjustly treated under such a regime, because they would still be able to compete successfully whenever their costs are lower than those of the common carriers.

Under existing conditions of unequal treatment by government, the proportion of total traffic the common carriers are getting is shrinking year by year. This situation is costly and dangerous to the country, because the nation needs the service of the common carriers—and, indeed, cannot get along without them.

The Cabinet Committee which made this report did not have a single man on it with any background exposing him to suspicion of bias in favor of the railroads or other common carriers. The same observation applies to the able "working group," headed by Arthur W. Page, which did the groundwork for the committee's report.


2400 H.P. CONVENTIONAL AMERICAN COACH TRAIN
2000 H.P. LIGHT WEIGHT LOCOMOTIVE TRAIN WITH FULL LENGTH CARS
LIGHT WEIGHT MOTOR TRAIN WITH FULL LENGTH 300 H.P. CARS
300 H.P.
FOUR-UNIT SHORT CAR LOCOMOTIVE TRAIN WITH SINGLE AXLE DIVISIBLE TRUCKS
1200 H.P.
FOUR-UNIT SHORT CAR MOTOR TRAIN WITH TWO-AXLE TRUCKS
500 H.P.
500 H.P.
FOUR-UNIT SHORT CAR MOTOR TRAIN WITH SINGLE AXLE AND DIVISIBLE TRUCKS
500 H.P.
500 H.P.

Total length in feet	Light wt in tons	Number of axles	Revenue length ft	Light wt per ft of rev length	Hp per ton
580	540	28	474	2,280	4.4
571	312	28	474	1,320	6.4
510	300	24	474	1,270	6.0
532	190	19	444	860	6.3
516	174	32	432	805	5.8
516	160	18	432	740	6.3

HOW SHORT-CAR TRAINS cut weight over long-car consists. A motor train with either type cars weighs less than a locomotive train. Solid circles indicate driving wheels.

Lightweight Trains—

• Where They Should Be Used
• How They Should Be Built

By H. BLEIBTREU
Consulting Engineer

Are today's passenger car and train designs obsolete beyond redress? Should the basic design concept of full length cars be perpetuated, but advanced engineering principles applied to it? Or should American railroads go to the short-car trains of the Talgo variety?

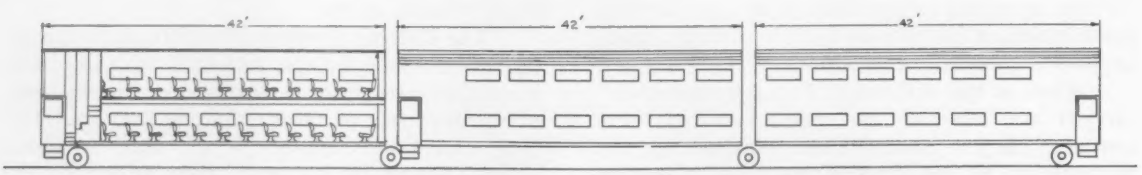
Whether the cars are long or short, should they be pulled by separate locomotives? Or should some or all of the cars contain their own power plants and be combined to form motor trains with operating characteristics and flexibility comparable to electric m-u trains?

And what about the various running gears and spring suspensions of these new trains? Which of all these designs comes closest to the "Train of the Future," i. e., a train that makes profits even after the glamour of its novelty has worn off?

It may not be possible to answer these questions fully at this time, notwithstanding their urgency. But we can make a pretty good start by first exploring the fields in which the new design concepts can be useful—then analyze some of the features of the new designs to see how well they will fit the needs of the trains of the future.

The Coming Transformation

First of all, we must realize that we are facing a profound change in the structure of passenger service as a whole. The disappearance of branch-line service and a large part of local service is only a question of years. Nor is there any doubt that long-distance service (trips that take more than over night, or beyond about 1,000 miles) will succumb more and more to air travel, excepting a few deluxe trains with modern sleepers and high-level dome type cars, which the passengers will ride



SHORT CARS lend themselves to double-deck design just as well as long cars. Here is a 3-unit car with the divisible truck on each end for coupling to like groups of units, and with radially guided single-axle trucks in the middle.

more as a "cruise" than as a means of getting between two widely separated points.

This would leave only suburban and interurban operations (200-300 miles). Undesirable as both may be, if looked at from the traditional standpoint, they are not only indispensable, but will grow in volume.

Consider first suburban service. It already carries over 50% of all passengers of Class I roads and is expanding. To see why it will continue to grow and why, much as they might want to, the railroads cannot abandon commuter operations, consider just one example. To replace ten trains of 1,000 seats each during a one-hour rush period would take 200 buses with that many drivers, and they would follow each other at intervals of 18 seconds! This, of course, is incompatible with fast and safe operation, even on superhighways.

Medium-Length Runs

There is a definite need for fast comfortable morning and evening trains between major cities 200 to 300 miles apart. If run at a 75-mph average, such trains can very well compete with the airplane. Equipping them with a conference room, telephones, secretarial service and airplane style kitchenettes would increase their attractiveness to business men. So, too, will more frequent service —which can often be rendered at small additional cost with the right design. For example, on one 300-mile run, replacing a conventional 12-car train with three conventional motor trains would require an increase in patronage of only 15% to cover the extra cost.

Whatever the train of the future may be, its main fields will be suburban and interurban service, and to these the designer must give first consideration, whether we like it or not. They are the only mass markets for new designs of passenger equipment in the foreseeable future. They are, furthermore, the services in which mileages are smaller and savings in initial cost more important.

Conventional Designs Inadequate

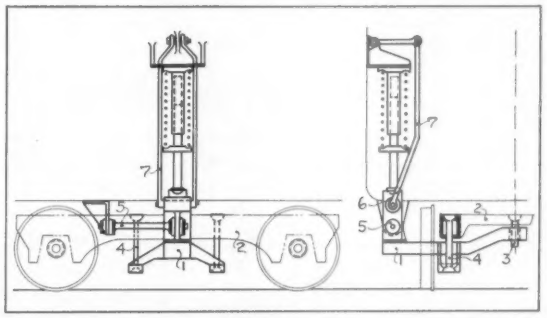
It is obvious that trains consisting of conventional cars —superannuated as they are even today—are absolutely unfit to meet these new requirements. The conventional coach is too high in first cost, entirely too heavy, and apt to develop poor riding qualities.

First cost can be reduced by lightweight designs. European practice has proved that it is entirely possible to build 85-ft coaches which weigh 40% less than ours. If standardized at the same time, similar lightweight coaches built in this country should cost about a third less than cars available today. And there is no reason why such lightweight cars should have poorer riding qualities or be any less safe than our present cars.

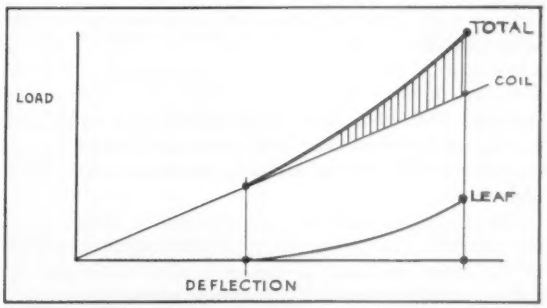
Just how much these lower first costs can mean may be seen from an example in suburban service of a car that makes 60 miles a day, 300 days a year, has 15% capital costs, and averages 50 passengers per mile. If its cost could be cut from $110,000 to $70,000, the saving would be 0.67¢ per passenger-mile, or a third of the revenue per passenger mile. For long-distance runs, on the other hand, savings in first costs are less important.

From what has just been said it would follow that the design of the trains of the future must start from new

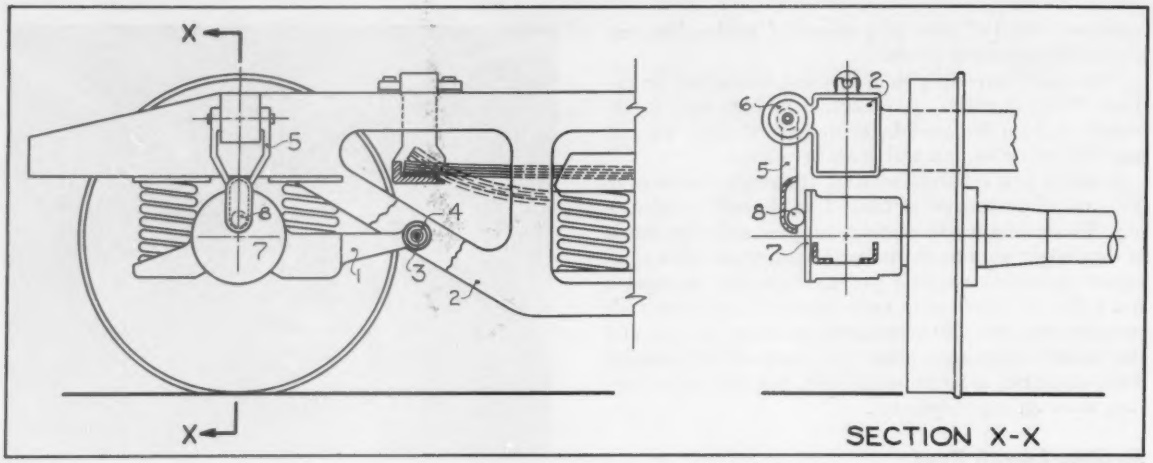
THREE PRECO CARS built before the war showed pendulum suspension gives a good ride. The main drawback of the suspension used on these cars—the intrusion of the springs on revenue space—can be overcome by the design shown in the sketch below.



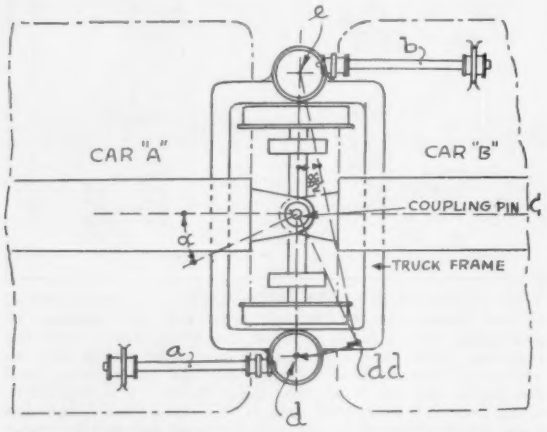
THIS PENDULUM SUSPENSION avoids one major pitfall of the Preco car by having both top and bottom of pendulum spring move with the car body. This avoids the twisting action that occurred on the three Preco cars on which the bottom of the spring was tied to the truck and the top to the car body. The truck bolster 1 is pinned to truck frame 2 by bolt 3, and at the same time suspended from truck frame 2 in the conventional manner by swing hangers 4. Contrary to ordinary practice the truck bolster 2 turns in curves not with the truck but with the car body. This is obtained by anchor rods 5 tied on one end to the car body and on the other end to the truck. Centrifugal forces are taken up by the rubber torque spring 6 and torque arm 7.



THIS SHOWS the difference between straight-line characteristic of the coil spring and convex characteristic of the leaf spring mounted on the curved surface of the swing hanger shoe (which reduces the spring span as the load increases). A given increase in load always produces the same increase in deflection on the coil spring. But on the leaf spring, the same increase in load gives a smaller deflection as the total load increases. The combined effect of the two springs is shown by the heavy lines.



This lightweight two-axle truck has three new features:
1—Pivoted journal boxes, having extensions 1 which are pivoted to truck frame 2 by bolt 3. The latter can slide freely in the rubber-mounted bushing 4. This reduces the shimmy which develops in conventional boxes as a result of longitudinal play between pedestal liner and side of box
2—Lateral journal box control—Retainer arm 5 is hinged to truck frame 2 over cylindrical rubber insert 6. Acting as a torque spring, this insert holds arm 5 against journal box face by means of a floating disc or ball 8. This eliminates the need to replace wear plates, also side play, and reduces lateral oscillation of the truck frame
3—Convex spring characteristic—This is attained by mounting a leaf spring so that its effective length (span between supports) decreases with increasing load. This avoids excessively hard vertical springing at light loads, excessively soft springing at heavy loads.



Single-axle radial truck—Its frame 1 is connected to car A by anchor a, and to car B by anchor b, while cars A and B are connected with each other by coupling pin C. The kinematic effect is that in curves the truck axle bisects the angle the two cars make with each other. The axle points therefore to the center of the curve, or in other words, assumes, as desired, a radial position. As the angle x is formed between the facing ends of the cars, d moves to dd. Point C moves half this distance. Therefore the angle at e is half of x and the truck bisects the angle between the ends of the cars. The cars are supported by the two pendulum coil springs d and e, d supporting car A, and e supporting car B. The pendulum springs are therefore kept free of lateral or torsional forces. The remaining side of each car is hung on a bracket mounted on the adjoining car.

premises. This offers both an opportunity and an obligation to break with obsolete conceptions and to proceed on the path of technological progress. Here are some of the high points.

The car body should be a tubular shell of high columnar strength. As the car body weighs roughly one-third of the entire car, and as lighter bodies result also in lighter running gears, weight savings of the body structure are doubly important. To combine strength with low weights, the frame, sides and roof must form an integral, quasi-tubular structure of high rigidity against vertical, lateral and buffing forces.

Squeeze tests have shown that, in German tubular car bodies with rigid window posts and corrugated roofs, over 40% of the buffing forces are taken up by the sides and roof. Tubular shells without center sills already are being used extensively in Europe. Although lighter, they offer more protection than our conventional cars with the, so-far, obligatory center sills. In fact, the latter may do more harm than good, if in a wreck they tear loose from their superstructure and pierce adjoining cars.

As another safety feature, car or train ends, or both, should have self-sacrificing members which absorb impact energy by plastic deformation or shearing. To adopt a term used in the automotive industry, a "crashworthy" structure of this kind would protect the passenger in two ways: First, it localizes the destruction to the car or train ends. Second, by largely reducing the deceleration, it diminishes the danger not only of fatal head and neck injuries but also of leg injuries, caused by torn-loose seats.

Going by actually built full-length cars, the weight reductions by tubular designs can amount to 35%—or from 32,000 to 21,000 lb for the body, from 120,000 to 80,000 lb for the entire car.

How Long Should a Car Be?

In agreement with theory, further weight savings are obtainable by shorter cars. The minimum will be reached at lengths from 30 to 40 ft. Below these values the weight per foot will increase again. Comparisons of the weights of some long- and short-car trains are tabulated. The basis for comparison is per foot of revenue length. This standard has some weaknesses, but is felt to be the most accurate overall for comparing both long cars with short cars, and motor trains with locomotive trains.

The argument that short trains involve lesser operational flexibility and a larger multiplicity of couplers and axles is erroneous, as a look at the tables will prove. A further advantage of short cars is that they can be built like buses without the expensive welding jigs and fixtures necessary for full-length cars. The big question mark on their practicability is public acceptance.

Comparing once more the full-length car of tubular structure, and a weight of 950 lb per ft, with the 40-ft car weighing only 470 lb per ft, the saving of over 50%

is due roughly half to the shorter length, and half to the all-aluminum body structure of the short car. If the tubular body of full length cars were also entirely of aluminum, the weight saving would be less—probably not more than 15%. With increasing car length the vertical deflection of light metal structures may increase even at moderate stresses to such an extent that the natural vibrational frequency which is a function of the deflection, irrespective of the material, will fall below the lower comfort limit of about 12 cycles per second.

Light metals are therefore predestined for short cars. Here the AlMgSi alloys are particularly suited. Although not as strong as the AlCuMg alloys, they are corrosive resistant and easier to weld.

Whether for full length cars carbon or stainless steels alone, or in combination with light metals, are preferable, remains an open question. As tests have shown that the stresses in tubular car structures exceed at no place 7,000 psi, if fully loaded, and 24,000 psi, if subjected to the full squeeze test force, non-alloy steels suffice, as far as strength is concerned. Stainless steels would result in relatively small weight savings, but, being non-corrosive, have the advantage of better appearance and lower maintenance.

Running Gear Features

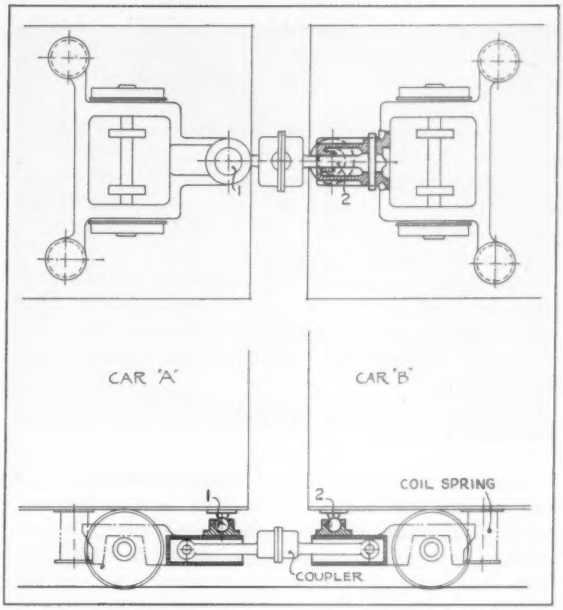
A low center of gravity has been stressed too much. What counts are car and vestibule floors that can be reached comfortably both from low and high station platforms, and that are high enough to permit the use of standard wheels and axles, preferably with outboard journal boxes. Both requirements are met by floors about 33 inches above the rails. Lower floors demand not only non-rotating offset axles and wheels with built-in bearings, but also forbid underfloor water and waste tanks.

Logically, lightweight car bodies entail lightweight trucks. Two-axle swivel trucks weighing complete between 5,275 and 7,850 lb are being used successfully in Europe. While we might not want to go down quite that much at this time, truck weights of 12,000 lb, considered by many as "light," are still excessive. The first step would be the introduction of a standard lightweight wheel and axle set with a thinner hub similar to what is now being used in Europe.

The biggest change needed in truck design is the elimination of the traditional pedestals with their uncontrolled and wear-amplified longitudinal and lateral play. Play is the worst enemy of good riding. The saying: "Any truck rides well, as long as it is new" contains more than a grain of truth. Nobody would tolerate an automobile with any loose play whatever. Pedestals were formerly used in many industries, but only the railroads use this design concept today.

One way to eliminate pedestals is to use journal boxes pivoted to the truck frame longitudinally without any play. Railroads which have adopted pivoted journal boxes found that mileage between regrinding of wheel treads can be approximately doubled. "Shimmy" can of course also be fought by increased center plate friction or by hydraulic dampers, but only after it has begun. whereas the pivoted journal box arms prevent the evil at the root.

Another evil of pedestals is the lateral play between them and the journal boxes. This play, like the longitudinal play, increases with increasing wear and leads to expensive relining of the wear plates. Side play also sets up at high speeds severe lateral jerks, which are not only transmitted to the car but also cause the truck to perform violent horizontal oscillations. It appears logical to control and dampen these lateral forces at their origin. This can be done by the lateral journal box control retainer illustrated.



Divisible end trucks—Each half of these trucks is attached to its own car by trunnions 1 and 2 which are universal ball joints of conventional design. When coupled together, both halves form a semi-rigid two-axle truck, the two trunnions forming two swivel points. When each half operates by itself it acts like a two-wheel trailer truck on a steam locomotive (pivoted about a point some distance removed from the axle). These trucks are used on each end of the 3-car double-deck units.

Are Leaf Springs Needed?

Auxiliary leaf springs offer a characteristic desirable for lightweight trains with the relatively large difference between light and full load weights. This characteristic is shown by the convex curve in one of the drawings, and it shows how this leaf spring "hardens" with increasing load. The soundness of pendulum suspended cars has been demonstrated by the three "Preco" cars, built shortly before World War II. Their weakness, the coil springs and the lateral forces acting on these springs in curves, can now be avoided and only one spring will be needed at each corner of the car instead of the four on the Preco.

Single Axle Trucks

Lightweight short cars suggest the use of but one axle, which may be placed between two adjacent cars, or at one car end, leaving the other end to rest on the next car. The pony truck or wishbone suspension of the original Talgo trains restricts itself to cars not longer than 25 to 30 ft and to trains which operate in one direction only. For longer cars and two-directional runs, wheel resistance can be kept down only if the axle

assumes a radial position in curves. Unlike two-axle trucks, which automatically adjust themselves radially, single-axle trucks must have a radial guide which derives its motion from two adjacent cars.

As single-axle radial trucks are a recent development, practical experience is, so far, limited to one German lightweight train. While the outlook is not unfavorable, it must be remembered that the two-axle truck of another similar train weighed only 6,600 lb or about 2,100 lb more than the single axle truck.

Two rigid axles per car, with wheelbases not to exceed 28 ft, have been used in Europe. But besides the fact that these cars do not ride well at speeds beyond 50 mph, there will be almost twice as many axles as with single-axle trucks.

Divisible Trucks

Division of a train in several independent units, of say two to four car bodies each, would lead to two-axle trucks at the outer ends of each of these units. In case of short cars, this would defeat to some extent their advantage, i.e., the smaller number of axles. One way out of this difficulty is a divisible truck that has been worked out for the short-car double-deck train illustrated. Inboard bearings are used on both the divisible end trucks and on the single-axle trucks between the units of the double-deck train. They avoid interference with the space available for the entrance steps regular outboard bearings would impose. In the divisible truck design (illustrated) the frame for the intermediate truck has two long longitudinal members which join the coupled cars beyond the entrance area. At the ends of the longitudinal pair of frames are transverse members from the ends of which the car bodies are sprung. These transverse members extend nearly to the outside of the car so that the springs are near the outside and will have minimum wobble.

Locomotive or Motor Train?

Motor trains have the advantage of lower weights, while the first costs will be about the same as for locomotive trains. Basically, the motor-train idea with its distribution of diesel motors over the entire train is the fulfillment of one of the inherent advantages of diesel power, i.e., its remote-controlled decentralization with a number of small, yet efficient high-speed production units. With the advent of light, high-speed diesels with low maintenance and high dependability, the motor train may gain acceptance in years to come. Its divisibility in two up to six independent units makes the motor train a highly flexible conveyance. Another advantage is fewer switching movements at terminals.

The multiplicity of servicing points is not more objectionable than the multiplicity of air conditioning units now generally accepted.

Although most railroads are, by tradition, locomotive minded, the possibilities of motor trains deserve further exploration.

Solid Alloy Engine Bearings

Eight years experience with solid aluminum alloy bearings for diesel engines indicates ability to operate under heavy loads

By D. B. WOOD
Head of Bearing Section
Cleveland Development Division
Aluminum Company of America

Solid aluminum alloy bearings made from castings furnished by the Aluminum Company of America have been in use for the past eight years in locomotive engines used by most of the railroads in this country. While such bearings are relatively new when compared with the history of bearings made of other materials, every indication from field service is that, with proper design and installation, they will take as much abuse as other bearings, or more. Solid aluminum alloy bearings are the only mono-metal bearings that can operate under heavy or high-duty requirements.

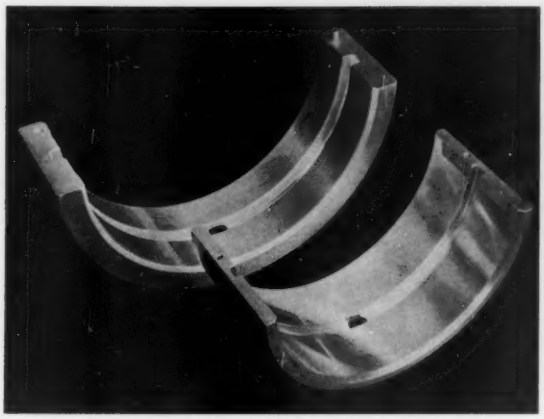
The basic advantages of solid aluminum bearings have been definitely proved in road service, substantiating previous assumptions founded upon laboratory test work.

In general the advantages of solid aluminum bearings are: (1) Resistance to damage of journal or adjacent parts in the event of failure; (2) excellent resistance to corrosion; (3) ability to carry heavy loads; (4) high thermal conductivity; (5) conformability to misalignment; and (6) adaptability to various designs and types of applications.

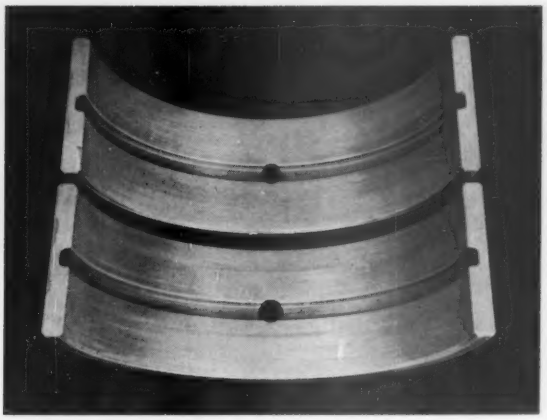
In designing aluminum bearings, there are relatively few points for consideration. Running oil clearance and crush stress are probably the most important. In some measure, the crush stress influences oil clearance at operating temperature due to such reduction in clearance as may result.

When aluminum bearings are used in ferrous housings and the ultimate operational temperature is high, careful and thoughtful analysis should be made of bearing crush requirements at installation temperature. Aluminum bearing alloys have a coefficient of thermal expansion approximately twice that of ferrous materials. This gives a differential expansion in the neighborhood of 0.0000065 in. per in. of length per degree F. Where aluminum bearings are used in aluminum housings, this differential expansion is eliminated.

By tests on actual connecting rods taken from large diesel engines and backed by experience in use, it appears that a crush stress of approximately 5,000 psi is desirable. This assures that the bearing is firmly seated



SOLID ALUMINUM BEARINGS as they are furnished to locomotive builder.



SOLID ALUMINUM BEARINGS after one year's service in a locomotive engine.

in its housing and, depending upon the alloy selected, allows for reasonable temperature increase without the bearing becoming loose in the housing from permanent deformation as a result of high stress caused by elevated temperature.

A recommendation is usually made to use an oil clearance of 0.0015 in. per in. of journal diameter where the bearing shell is concentric or uniform in wall thickness. When eccentric or taper wall bearings are used, an oil clearance of 0.00175 in. per in. of journal diameter is specified across the parting line of the bearing and 0.00125 in. per in. of journal diameter at right angles to the parting line surface at the bearing crown.

The above-mentioned figures refer to split-type bearings (usually two half shells) under reciprocating load conditions similar to normal engine bearings.

It is possible to reduce the figures given above for oil clearance by proper preparation of the journal or mating bearing surface and by adequate oil supply and filtration.

Many of the problems relating to crush and clearance can be reduced by the use of full-floating bearings. Where design and installation do not present unsurmountable obstacles, solid aluminum lends itself naturally to this type of bearing because of simplicity of fabrication.

Probably the next most important design consideration is the method or device used in locking or fixing the bearing in its position in the housing. Over the years, various methods have been devised and used to accomplish this. When aluminum is being considered, the most appropriate device provides maximum resistance to turning without restrictions that would result in high stress concentrations in certain areas or portions of the bearing.

The next item for design consideration is the finish of the journal or mating surface and the finish of the bearing itself. This is hard to express in numerical terms or to describe. The following general statements may best outline the optimum requirements:

- Bearing finishes obtained by cutting with a sharp tool are the best, even though the surface finish in measurable rms (root mean square, obtained by a Brush profilometer) is higher than for a surface obtained from a dull tool or one so designed that some degree of burnishing is done with the cutting operation. The above remarks apply also to journal finish or other surface of bearing.

- Final journal finishes should be obtained with a machining setup that does not allow irregularities in the surface, or if this is impossible to control, then other measures should be adopted to insure an even surface plateau. It may be beneficial to super-finish and subsequently lap to obtain the results desired. The super-finish controls the plateau of the surface and thereby avoids sharp peaks; subsequent lapping leaves only voids in the surface, thereby probably increasing wettability, oil retention and reducing starting friction. Too low rms finish may restrict wettability and oil retention and increase starting friction.

- Grinding on aluminum bearing alloys should be done with caution so grit may not be left in the surface of the bearing.

- In some rare instances, it may be necessary to electroplate the bearing surface. Depending upon conditions of operation, such an overlay can be from 0.0005 in. to 0.020 in. thick.

- Once the design and fabrication of the bearing have been established, the next most important detail is the actual installation in the engine.

- Cleanliness is certainly of utmost importance where engines are concerned. Too much emphasis cannot be placed upon engine cleanliness.

- Bearings should be handled with care as dropping, nicking and hammering do not improve any bearing. When bearing caps are being torqued up, it is good practice to check the alignment of the two half shells at the parting line face to see that they do not overlap. A rough check on crush stress can be made at the time of installation. The easiest way of doing this is to bring the cap in position and draw up the bolt or stud nut tightly with the fingers only. A feeler gage inserted between the cap and the housing will give a dimension from which crush stress can be calculated.

- A check should also be made on oil clearance as well as total end clearance so that ample space is provided for increased bearing length at higher temperature.

- The foregoing does not imply that solid aluminum bearings should be considered for heavy or high-duty applications only. In medium and light service, they work equally well and for new designs provide the opportunity to reduce physical dimensions and thereby obtain measurable economies.

WINSTON YARD provides complete facilities for receiving, classifying and making up trains. Yard office and tower is at left, Bone Valley main line at right.

Yard for Just One Commodity

ACL's new 2,000-car flat-switching facility handles classification of phosphate cars from adjacent mineral-rich Bone Valley district in Florida

PHOSPHATE cars, including box cars, open hoppers and covered hoppers, from Florida mines are handled exclusively in this unique yard.

LAYOUT provides receiving and departure tracks, classification tracks and clean-out and repair tracks.

YARDMASTER in tower atop yard office has a variety of communications systems at his finger tips.

The only yard of its kind operated by a major U. S. railroad went into service this year on the Atlantic Coast Line near Lakeland, Fla.

Named Winston yard, it was built especially for handling cars of phosphate, either in the form of phosphate rock or refined superphosphates. Covering over 538 acres in the familiar ladder-track layout, it includes six 150-car receiving and departure tracks, twenty 50-car classification tracks, three 50-car cleaning tracks and one 25-car repair track.

Unique Yet Typically Modern

While the facility is unique in being solely a phosphate yard, it is typical in that it is built in accordance with modern concepts of yard design. Originally the site comprised a small layout of tracks designed as an auxiliary to the Lakeland yard. Continuing increases in phosphate traffic made it desirable to enlarge and improve the accommodations for handling phosphate cars. The Winston yard location was selected as a practical site for the expansion.

It is located alongside the ACL's Bone Valley main line, just south of its junction with the Lakeland-Tampa main line. The area made available for the yard is adequate not only for present use but for an expected future increase in traffic. The site has proved well suited to yard construction, being isolated from any developed area and particularly adapted to fast handling of train movements to and from the phosphate-mining territory.

In addition to the yard tracks and standard switching leads, an additional track was constructed to connect the Lakeland and Winston yards, and the former has been rearranged to permit laying other new lead tracks linking the two yards. This, in effect, has made the two yards almost as one.

Operations at the new installations are controlled from a new yard office at the north end, with the yardmaster in a tower atop the office building. His communications console permits him to talk with personnel on the ground using either talk-back speakers or walkie-talkie sets. He also can communicate with switch engine crews by direct two-way radio. Telephone and telegraph communications permit the yardmaster to keep in touch with practically all other points on the ACL system.

Crews on trains entering the yard from the north end receive instructions directly from the yard office and are assigned a track by voice communication. Trains from the south, which do not have direct contact with the yard office, are governed by a track indicator.

Automatic Floodlights

The yard area is brightly illuminated at night by 61 powerful floodlights mounted on seven separate towers at strategic points. The floodlights are turned on automatically by light-sensitive photoelectric cells when night comes.

The new yard handles trains to and from High Springs, Fla., (about 145 miles north of Winston) and the Bartow-Fort Myers territory (south of Winston). With the new set-up most of the phosphate traffic will by-pass the yard at Lakeland and will be consolidated into trains at Winston for handling direct to High Springs and points north and west of that junction.

Formerly, the traffic was routed through the Lakeland and Uceta (Tampa) yards, with most of the traffic moving through Uceta.

The road reports that a substantial speed-up of train schedules has been made possible for the phosphate shipment, as well as other important traffic to and from the Lakeland-Tampa area.

PUBLIC TRANSPORTATION must be made fast and convenient enough to attract passengers who otherwise would drive their autos.

PROBLEM—

City Traffic Is Being Strangled

SOLUTION—

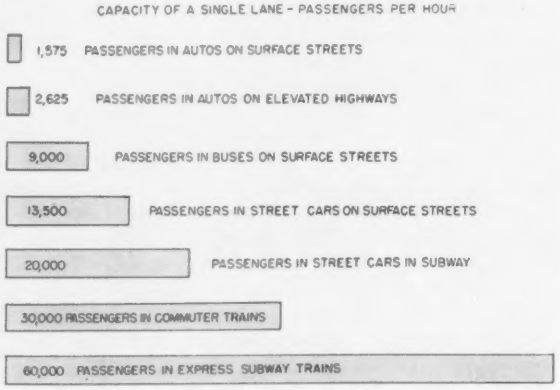
Coordinated Transportation

By E. E. KEARNS
Locomotive and Car Equipment Department
General Electric Company
Erie, Pa.

Awkward and cumbersome, or functional and convenient —which shall characterize our future metropolitan areas? A large part of the answer depends upon how freely goods and people can move. Yet, for the past 24 years, this factor has been sadly neglected. Emphasis on the movement of vehicles, rather than people and goods, has actually made urban transportation slower and less convenient than it was a quarter of a century ago.

The alarming gravity of this situation is becoming obvious to practically everyone. Present trends point toward a rapid increase in the acuteness of the dilemma. Charles H. Tuttle, chairman of the New York-New Jersey Metropolitan Rapid Transit Commission, says: "In the matter of public movement, the New York-New Jersey metropolitan area is living on borrowed time. Obviously the hour is late—very late. Present are the symptoms of lethal self-strangulation. Confusion is degenerating into anarchy. . . . Private enterprise in mass transit by rail is being choked to death by the irresistable competition of vast tax-exempt and toll-charging public facilities for automobiles."

Commenting on the financial aspect of this problem, Walter W. Patchell, vice-president of the Pennsylvania, said: "The operators of downtown stores, offices, restaurants, and so on assure us that traffic congestion damages their business in very significant ways. Real estate and


CAPACITY OF A SINGLE LANE - PASSENGERS PER HOUR
1,575 PASSENGERS IN AUTOS ON SURFACE STREETS
2,625 PASSENGERS IN AUTOS ON ELEVATED HIGHWAYS
9,000 PASSENGERS IN BUSES ON SURFACE STREETS
13,500 PASSENGERS IN STREET CARS ON SURFACE STREETS
20,000 PASSENGERS IN STREET CARS IN SUBWAY
30,000 PASSENGERS IN COMMUTER TRAINS
60,000 PASSENGERS IN EXPRESS SUBWAY TRAINS

CARRYING CAPACITIES of various forms of transportation.

FRINGE PARKING LOTS offer inducement to motorists to use public transit instead of driving into congested areas.

tax people assure us that such damages eventually result in decreased property values, which means a reduction in tax receipts . . . that has to be made up by somebody else. So, in talking traffic congestion we're talking about the business health of our community, as well as personal inconvenience."

Why This Situation?

There are probably two principal reasons for the glaring lack of progress in overall urban transportation services. First, public transportation—especially passenger services—has been a scatter of uncoordinated operations. Often confined within a single political area, these services are hampered by local, state and federal regulation and saddled with special imposts inherited from the monopoly era. Separate fare structures, lack of convenient transfer provisions, antiquated equipment, and low schedule speeds have pyramided into reduced patronage and financial distress.

The second reason for our deficient progress in this field is that some very important facts pertaining to private and public transportation haven't been widely enough recognized. For example, take the terminal or parking problem. If all workers and customers were to travel by private auto, about two square feet of parking space would be required for each square foot of business area. In terms of curb parking, the space around nine city blocks would be used by just the workers on the gound floor of one block. Still more space would be required for customers! Hence, the parking problem alone —both physically and financially—prohibits serving highly developed metropolitan areas solely with private autos.

The construction of freeways and other facilities that encourage volume travel via private auto into downtown areas, without concerted attention to much more efficient public carriers, is only making the congestion and parking dilemma worse.

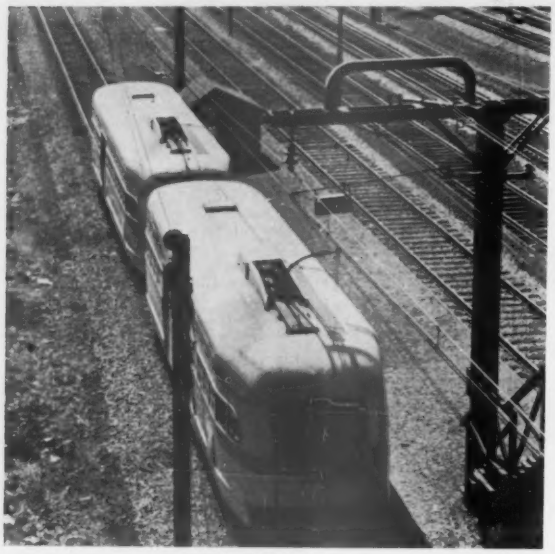
Another prime factor is the relative carrying capacities of various forms of transportation. These are illustrated in the chart. This clearly shows that rail transit is the most efficient means of moving people. For instance, if the number of passengers carried by the subway under Lexington Avenue, New York, were to travel by private autos they would require an expanse of expressways half a mile wide. And where could the sea of cars be parked after they arrived downtown?

Informed civic leaders are coming to accept the fact that coordination of private auto and public transportation is a necessity. In its interim report last February, the New York-New Jersey Metropolitan Rapid Transit Commission said, "An adequate modernized and scien-

HIGH-SPEED TRANSIT LINES on private rights of way offer advantages in time and convenience that win "preference" drivers from the private auto.

MOST of our large metropolitan areas have commuter services capable of handling volume passenger movements.

HIGH morning and evening peak loads tend to make commuter traffic uneconomical, stagnating needed expansion.



RAPID TRANSIT rights of way can sometimes be combined with through rail lines.

tific transportation system planned to integrate the present and the future, is as essential to the whole metropolitan organism as is the circulation of the blood to the whole human body." Leaders in Boston, San Francisco, Los Angeles and other large cities are voicing similar concern.

Certain categories of commercial and private autos must operate in highly developed urban areas. We might call these the "must" drivers. In addition, there are the "preference" drivers who use their cars to and from the congested areas because public transportation is too unattractive. To be successful, a development program should not only provide fast travel and parking for the must drivers, but should also attract the preference drivers to public transportation.

We should encourage the use of the private auto in non-congested areas and provide abundant, convenient parking at outlying transit stations. Schedules, equipment and fares should be such that the preference driver will find the combination of auto and public transportation superior to driving his car downtown. The steadily mounting total of auto registrations means that more and more people have a choice between private and public transportation. People generally prefer what is fastest, most convenient, and most comfortable. Our job is to provide the type of public transportation service that will attract sufficient "preference" drivers to substantially eliminate the traffic congestion and parking problems in our downtown areas.

How Shall We Go About It?

Having recognized the necessity of coordinating private autos, surface transit, rapid transit and commuter services on an area-wide basis, the question arises, How to proceed? A procedure that is becoming increasingly popular is to establish a commission or authority charged with the following responsibilities:

1. Obtain as accurate an estimate as possible of residential, industrial, business or recreational growth, pinpointed to geographic locations throughout the area;
2. Estimate future movements of people and goods, using studies of present movements as a guide;
3. Determine allocation of passenger and goods movements by specific routes and types of services so as to minimize congestion and attain reasonable terminal and parking requirements; and
4. Proceed with plans to effect sound coordination of all present modern and potential transportation services.

Most large cities have existent or potential rights of way for rapid transit and commuter services capable of large volume passenger movements. Urban expressways should be thoroughly planned with maximum coordination of private and public transportation in view. Center malls for exclusive, high-speed, public transportation can greatly increase the carrying capacity and hence the value per dollar expended for these new projects. Short sections of new rights of way, including subways, tubes, bridges, elevated structures and surface routes, will be needed to enhance through services and reduce time consuming and inconvenient transfers. Single terminals, with their very high volume and congestion of passengers, should be eliminated or reduced to a minimum. Instead,

passengers should be distributed via a series of stations. These should be located as near to destinations in the highly developed area as is consistent with keeping stops to a minimum and speeds to a maximum.

Operating and Financial Problems

Commuter and rapid transit services are characterized by very high peak loads morning and evening. The consequent low use factor of these facilities makes their full support from fares alone most difficult if not impracticable. It is this characteristic, more than any other consideration, that has stagnated their needed expansion. This does not imply, however, that these services should not be coordinated, modernized and greatly expanded. From the viewpoint of their economic importance quite the opposite is true.

Metropolitan areas must consider these services as necessary as streets, bridges, traffic control, water, and sanitation, none of which generally is fully self-supporting. Ways need to be found to augment the income from direct fares. For example, the cost of carrying charges of rights of way, including maintenance, could well be classed with streets or highways and provided through general funds. Other support could come from the elimination of unwarranted special franchise fees, imposts and taxes. By such means fares could be kept low enough to attract a greater number of riders.

Area Organization Plan

In addition to financing right of way from sources outside of fares, the thought that rapid transit and commuter services should be provided by one area-wide organization is gaining ground. This authority might, in turn, contract operation back to private enterprise on a good incentive basis. Considerations in favor of such a plan include:

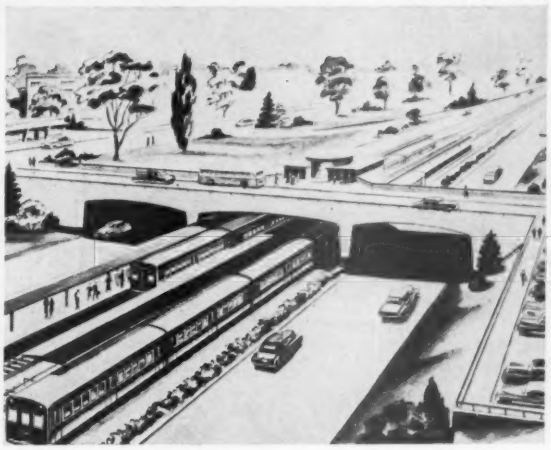
1. A high degree of coordination between the various rapid transit and commuter services. This could be obtained by such means as: Reduction of the number of transfers and more strategic location of transfer points; simplification of fare structures; reduction of terminal congestion and delays; elimination of duplicating services; establishment of new coordinating rights of way and services; and reduction of rolling stock and facility costs through greater standardization and larger volume purchases.

2. Better coordination with private autos by establishment of convenient auto-train transfers, including sufficient parking at outlying stations to encourage auto-train use, and faster overall auto-train service as a result of the factors listed in (1) above, thus inducing more drivers to use public transportation..

3. Better coordination with public surface transportation (buses, trolley coaches and street cars) through the development of strategically located transfer facilities; and through establishing coordinated services and elimination of unwarranted duplication.

4. Opportunity of establishing a practical way to reduce special franchise fees, imposts and taxes.

5. Possible relief from certain ICC regulations pertaining to vehicle design, operation and inspection which apply primarily to intercity operation on main-line railroads.



FUTURE PLANNING of expressways should provide for a center mall to accommodate rapid transit lines.

6. A practical way of segregating responsibility for (and financing of) rights of way, parking facilities, etc., from direct service operations, and from direct burden upon fares.

Where Do We Stand Now?

Today we see encouraging growth in the recognition and attention being given to metropolitan area-wide transportation planning. Government and civic leaders are recognizing the importance of adequate provision for public transportation in apportioning $37 billion for urban areas in the recently recommended 10-year street and highway program. National leaders in the fields of city planning, merchandising, real estate and traffic engineering are taking an increasingly realistic attitude in evaluating the relationship of various transportation services, including terminal or parking requirements. More and more they are recommending coordination of private auto and public transportation services.

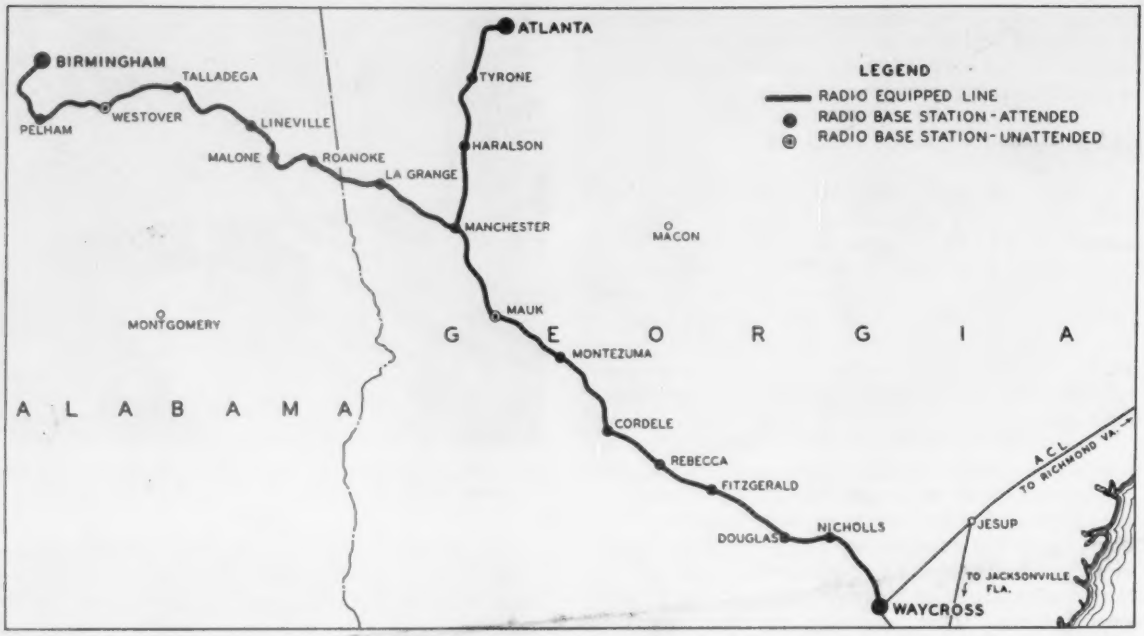
The San Francisco Bay area has announced a 9-county billion dollar plan embodying a high-speed rapid transit and commuter network especially coordinated with auto and surface transit services.

Cleveland and Toronto have just completed the first phase of new rapid transit programs.

The Pennsylvania recently materially increased suburban passenger service on its main line between New York and stations as far west as New Brunswick, N. J.

New York has just announced an $800,000 program to study area-wide commuter and rapid transit coordination, modernization and expansion. This includes $500,000 to be spent by the Port of New York Authority for a study of commuter service between Manhattan and New Jersey. Planned to blueprint a program for the next 20 years, the study is expected to take 18 months to complete.

Police Chief Parker of Los Angeles recently said that unless the 4-way transportation problem of time, distance, space and volume is solved that area will reach stagnation. In his opinion only by a rail network, completely separated from other traffic and supplemented by shuttle buses and railhead facilities for automobile connections, can the transportation quandary be solved.



ACL Radio Includes Innovations

Head-to-rear on passenger trains, as well as freights, with 20 wayside radio stations used by operators or connected for calls either way between dispatcher and trains on 476 miles of Western division

The most advanced and complete radio system on any railroad," is the description applied by the Atlantic Coast Line to the recently completed project on its Western division, the former AB&C railroad. This installation is regarded by the ACL as sort of a guinea pig, to determine what improvements in train operations can be realized when an entire division is blanketed with complete radio facilities.

Experience to date indicates that the radio has enabled the Transportation Department to keep in constant contact with all trains. In emergency, when physical communication lines are out of service, radio contact is particularly helpful in bridging line breakages. Such radio coverage also forms a supplementary communication system that promotes more efficient operation and expedites handling of trains. Other intangible benefits will be derived from use of this complete radio system, from standpoints of safety and efficiency, as additional experience is gained in its use.

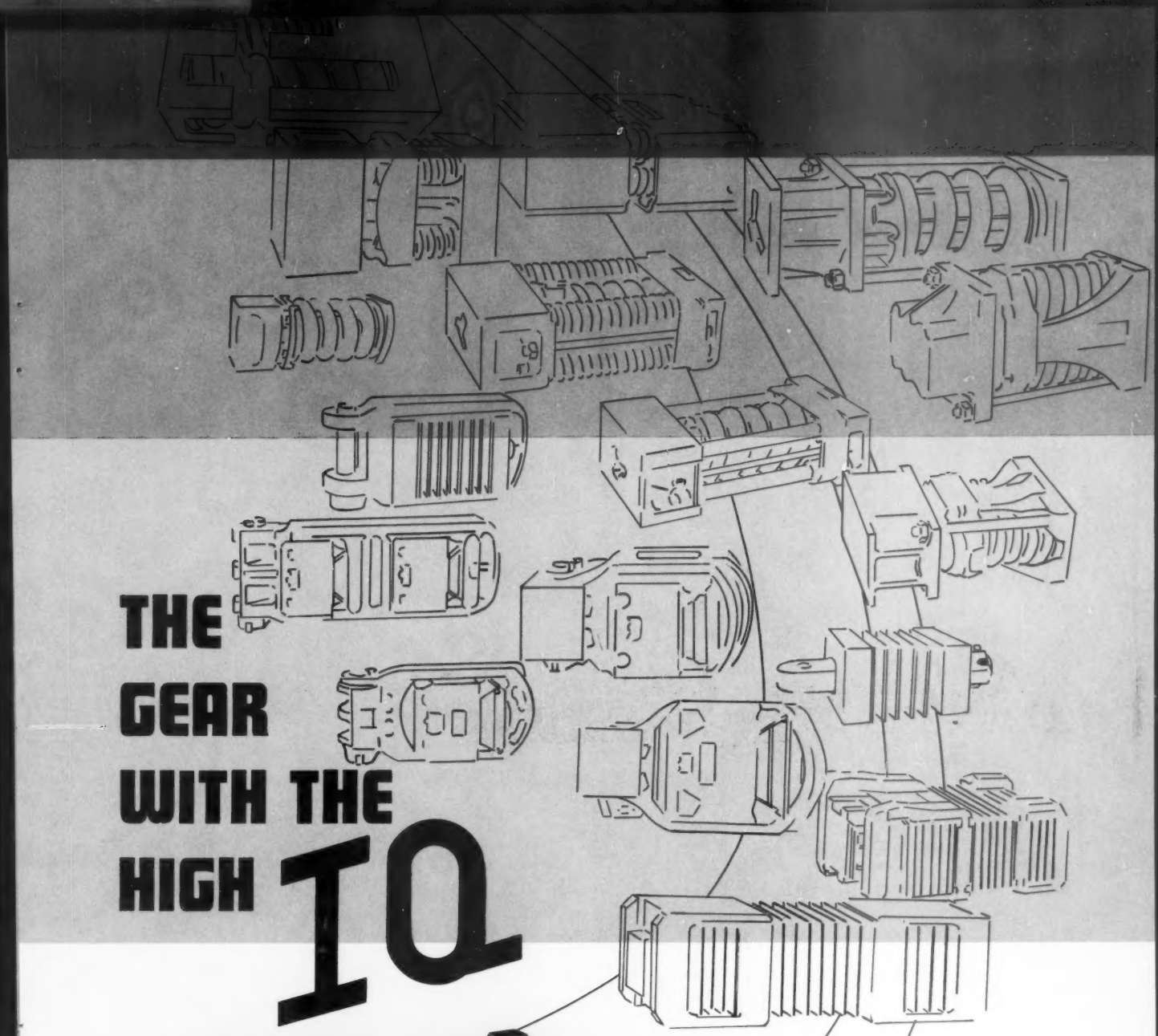
This division extends from Waycross, Ga., west through Manchester, Ga., to Birmingham, Ala., 398 miles, and north from Manchester to Atlanta, Ga., 78 miles, thus totaling 476 miles, most of which is single-track main line. The traffic on the Waycross-Manchester section totals about 16 trains daily, including 6 passenger trains and 8 to 10 freights.

Recognizing the benefits of radio for increasing efficiency of yard operations, the ACL during 1951 and 1952 installed base radio stations and radio equipment in yard offices and yard locomotives at Waycross, Birmingham and Atlanta. During 1953-1954, radio was installed on diesel locomotives and cabooses of all through freight trains on this division, to permit communication between head- and rear-end crews, and between through freight trains and yard radio stations when these trains are within radio range of these yards.

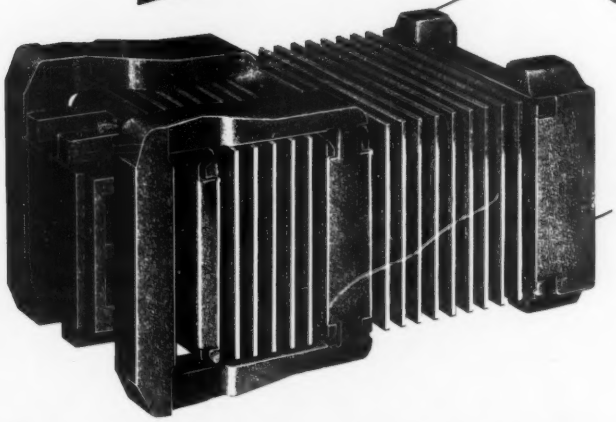
After extensive study in 1954, a decision was reached to further expand the application of radio, so as to "radioize" completely this Western division. Now, all road locomotives, including those not only on through freights but also on passenger trains and local freights, are radio equipped. Radio is now in service on 21 cabooses, 21 freight locomotives, 12 passenger locomotives and 3 switch engines. In addition, for use of trainmen when flagging or when inspecting trains, a walkie-talkie packset is provided on each locomotive, in each caboose, and for use by the flagman on the rear car of each passenger train. This use of radio on passenger trains is claimed to be first on any railroad.

As part of the project, wayside radio stations were installed at the dispatcher's office in Manchester, and at 17 intermediate offices spaced 13 to 35 miles apart, so that a train at any point on the division is within radio range of one of these wayside stations. The system provides radio communication between the train

(Continued on page 83)

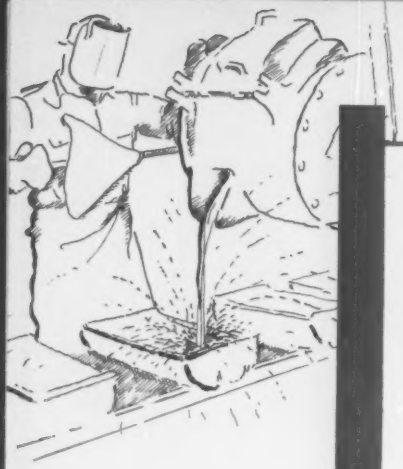


THE GEAR WITH THE HIGH IQ



NATIONAL MF-275
RUBBER CUSHIONED DRAFT GEAR

From a proud family of draft gears which has served the American Railroads for 37 years



THE GEAR WITH THE HIGH IQ

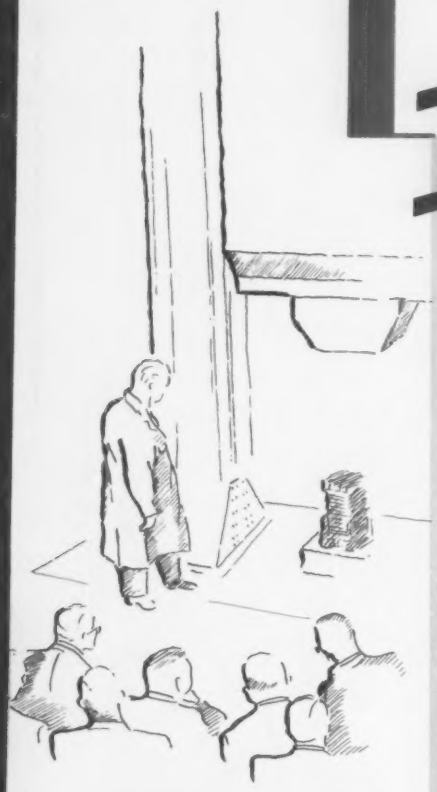
National's MF-275 Rubber-Cushioned Draft Gear has recently undergone extensive impact testing in competition with standard friction gears. The results of these tests, conducted on the National Technical Center's modern Impact Test tracks, give unquestionable proof of the MF-275 gear's high IQ or "Impact Quantum" (work done in absorbing impact forces and stresses).

Explanation of "Impact Quantum", together with the fundamentals of car impact and the results of these tests, are contained in National's "Report No. 155", titled "IMPACT". This report may be had by contacting any one of National's sales offices or by writing to the General Office.

In addition, a brief but detailed lecture on the subject "Impact", illustrated with slides, will be given anytime, anywhere upon request — one more service offered to our friends, the American Railroads.

On the following pages are charts from "Report No. 155" giving a few of the more salient features of the National MF-275 Rubber-Cushioned Draft Gear — a gear that fits any standard pocket and yoke, with no interference to train lines and which offers:

LOWER CENTER SILL FORCES
LOWER COUPLER FORCE
LOWER BODY MEMBER STRESS
LOWER ACCELERATION
LOWER "LAG FACTOR"



DRAW GEAR SPECIALISTS

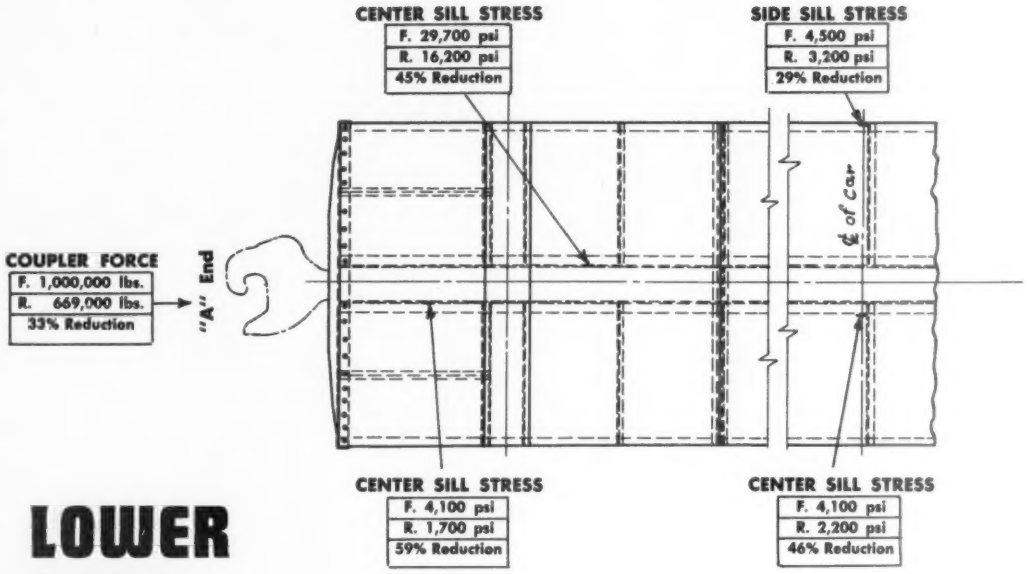
Since 1918 almost 900,000 National friction draft gears of various types have given the American Railroads approximately 151,200,000,000 miles of faithful service.

Since 1937 over 40,000 National Rubber-Cushioned Draft Gears, applied to Diesel Locomotives, have given approximately 200,000,000,000 miles of service.

Since 1893 National has been one of the leaders in the development and manufacture of automatic couplers.

On this basis National feels qualified to assume the title of "Draw Gear Specialist."

Not wishing to live on accomplishments of the past, nor on successes of the present, National is constantly working, through its Technical Center, to provide even better draft gears and couplers for the future . . . draw gear assemblies that will give even better impact protection to all rolling stock — and to its passengers and lading.



LOWER BODY MEMBER STRESSES

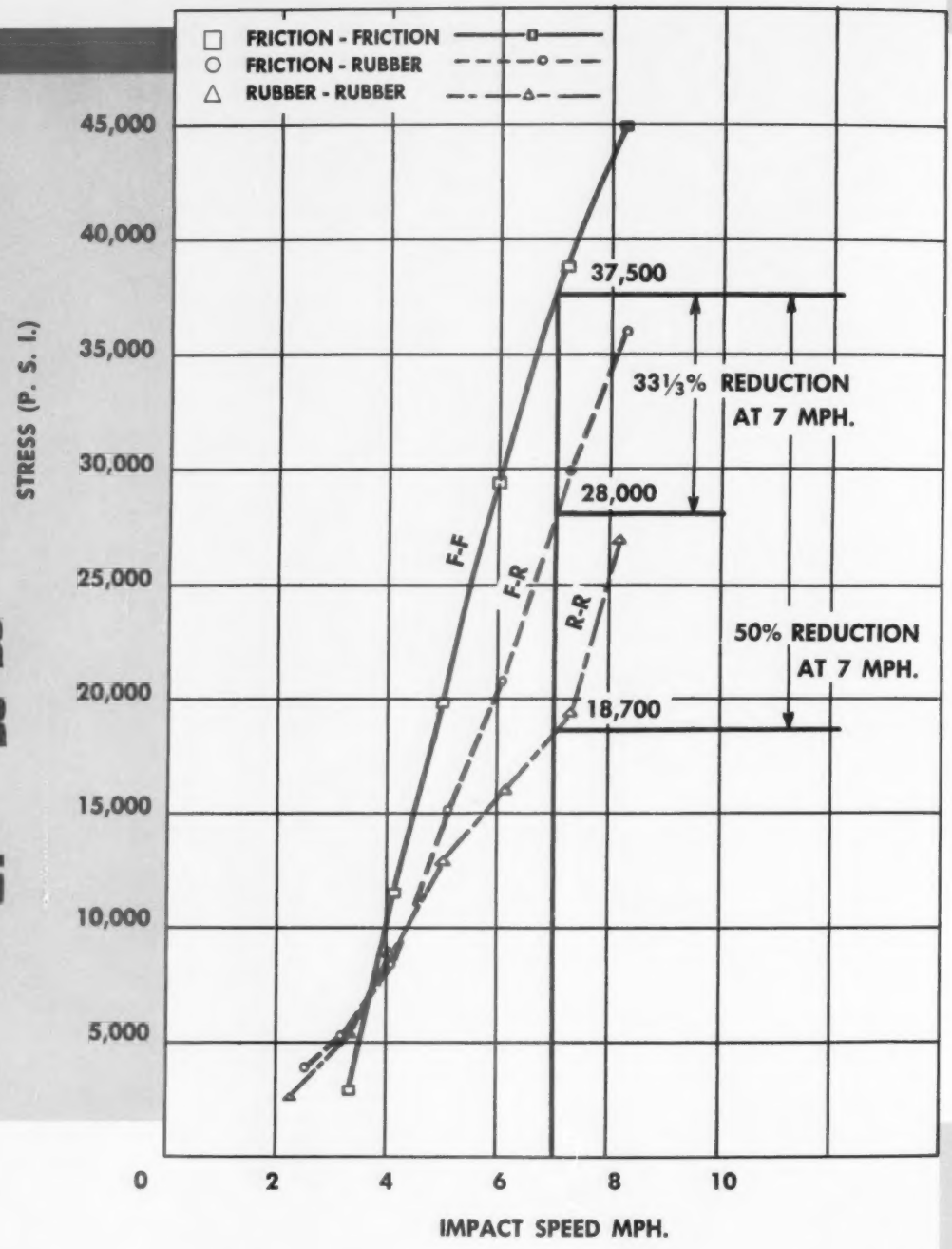
Management wants lower maintenance costs; traffic men want fewer bad-order cars, fewer car shortages.

Reduction of forces and stresses, in addition to greater lading protection, can mean lower maintenance costs, can reduce the number of bad-order cars and can make more cars available for shipments.

The above chart shows how stresses are reduced in car body members, bringing the stresses back into the safe capacity for which the body member was designed. Why continue to expend labor and material in "beefing-up" body members when the trouble can be corrected at its source?

Use National MF-275 Rubber-Cushioned Draft Gears for lower body member stresses!

LOWER CENTER SILL STRESS

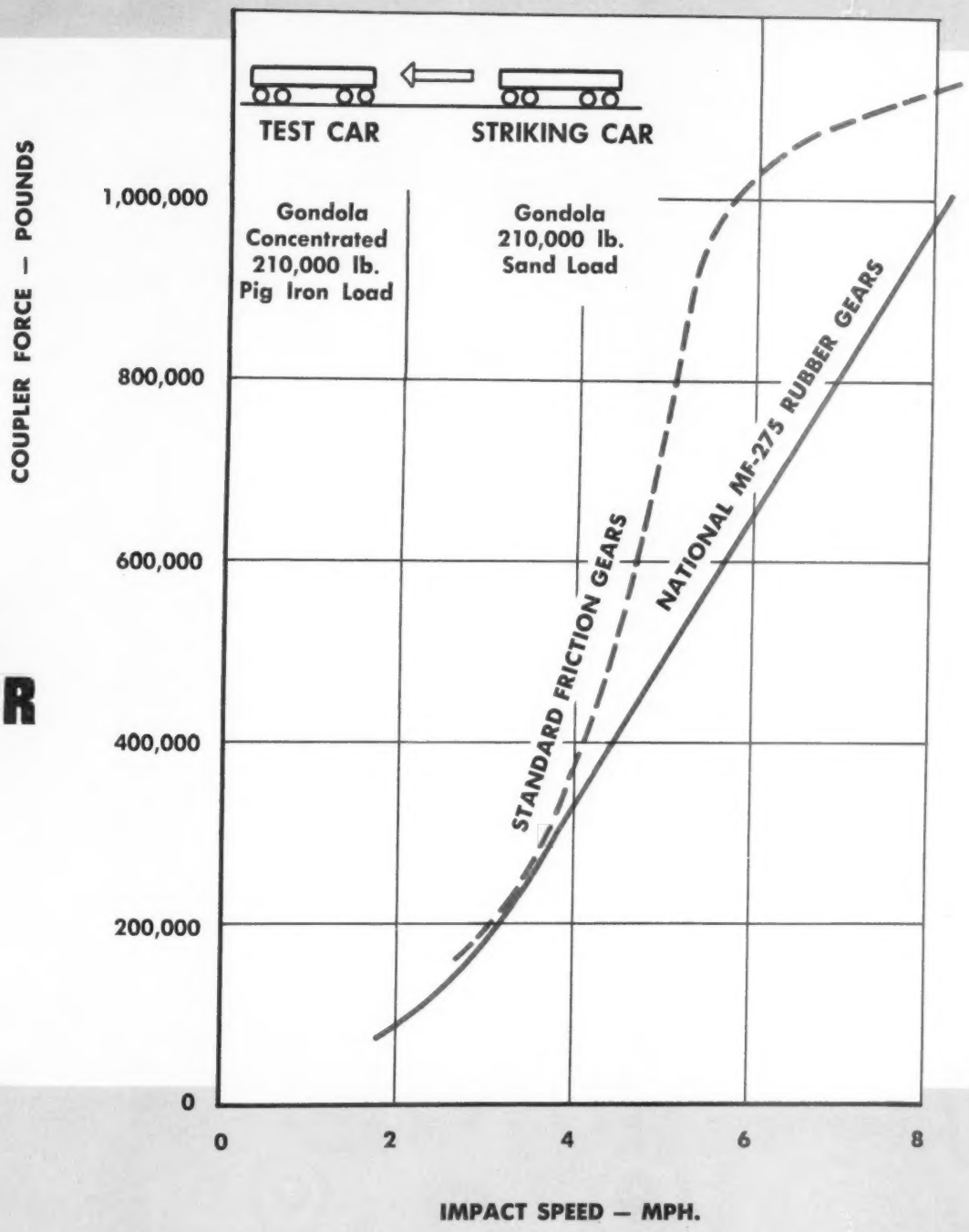


Buckling center sills plague all railroad men today. Mechanical men try to strengthen them; management wants to cut down expenses; traffic men want to keep cars running. Why not face the matter squarely?

Seven miles per hour is the accepted average switching speed today. Often it is greater. The chart above clearly indicates that at seven miles per hour the center sill stress with two National rubber gears is 50 per cent **lower** than with two standard friction gears; and with a combination of one friction and one rubber gear is 33-1/3 per cent **lower.**

Use National MF-275 Rubber-Cushioned Draft Gears for **lower** center sill stress!

LOWER COUPLER FORCE



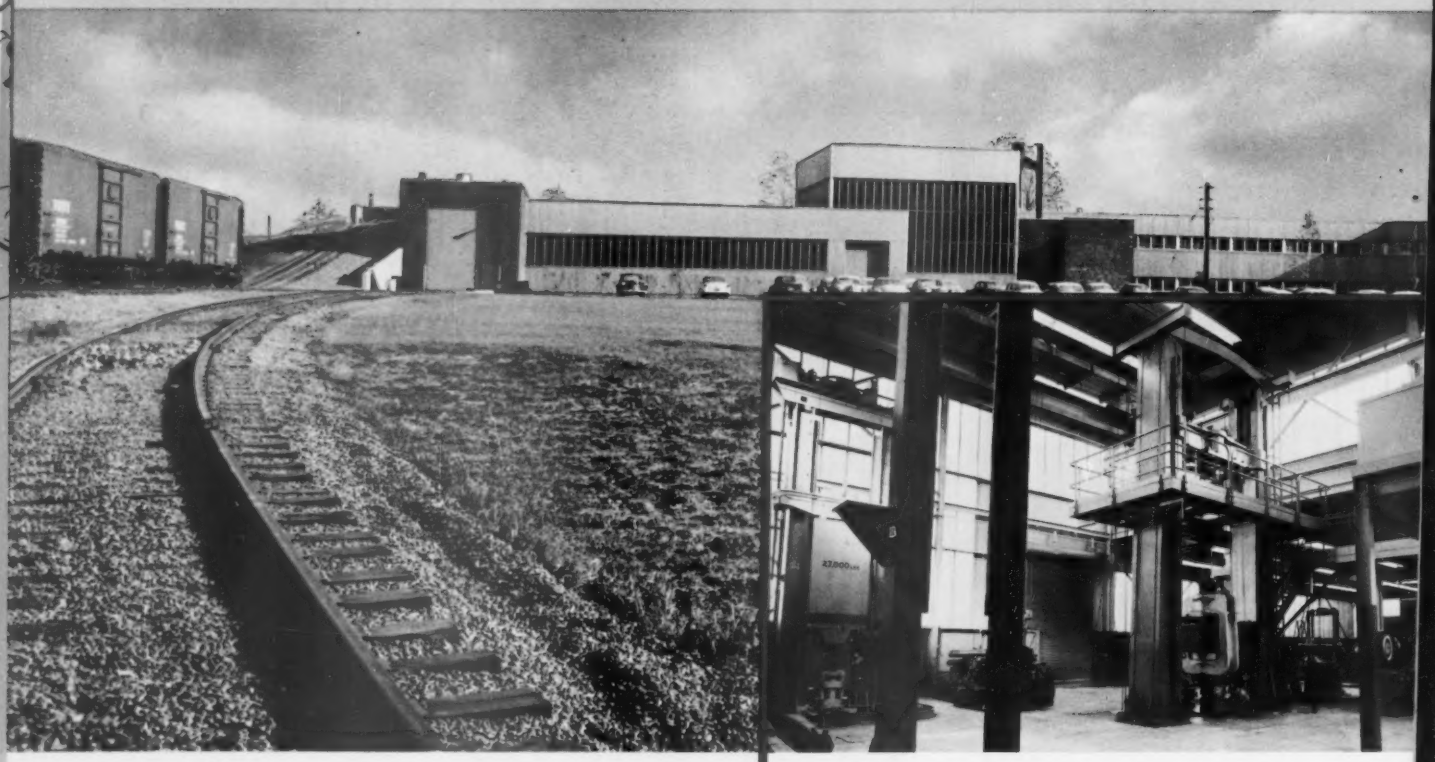
Few items used in 1932 train operations are used today. Trains are longer . . . heavier . . . run faster; locomotives are more powerful . . . have higher tractive effort . . . better braking; cars are bigger . . . heavier . . . carry more lading; switching speeds are higher . . . impact forces greater.

Yet, friction draft gears are in use today as in 1932.

Examine the chart above and see how coupler force is reduced up to 33 per cent with rubber draft gears.

Use National MF-275 Rubber-Cushioned Draft Gears for **lower** coupler force!

"PROGRESS THROUGH RESEARCH"



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New York 17, N. Y.

PHILADELPHIA
1617 Pennsylvania Blvd.
Philadelphia 3, Pa.

RICHMOND
219 E. Broad St.
Richmond 19, Va.

SAN FRANCISCO
681 Market St.
San Francisco 5, Calif.

ST. LOUIS
411 North 7th St.
St. Louis 1, Mo.

NATIONAL
MALLEABLE AND STEEL
CASTINGS COMPANY
CLEVELAND 6, OHIO

(Continued from page 76)
dispatcher and the wayside stations, and between adjacent wayside stations.

Fourteen of these radio stations are at offices where operators are on duty one or more tricks daily. The radio station is manually operated by telegraphers when on duty. The wayside radio stations at Mauk, Malone and Westover are wholly unattended. These three stations, as well as the others when unattended, are operated remotely by crews on trains, using special devices, or by the train dispatcher.

When a train is within range of an unattended wayside office—for example within 15 miles of Westover (which is 151 miles from the dispatcher's office)—calls can be made from the dispatcher to the train, or from the train to the dispatcher. In such instances, the conversation goes by conventional telephone on line wires between Westover and the dispatcher's office at Manchester and by radio between Westover and the caboose or locomotive of the train.

The controls manipulated by the dispatcher are few and simple; in addition to his present equipment used in dispatching trains by telephone and by centralized traffic control equipment, he has only two lever switches to actuate on his control panel to change radio frequency of the selected way station radio equipment. He uses his regular station selector to establish contact with the desired way station radio exactly as he selects a station when using the telephone.

This system of remote controls of wayside radio stations, in conjunction with line wire circuits from the dispatcher's office, is known as Centralized Radio Control, designed and engineered by the Bendix Radio Division of Bendix Aviation Corporation. Added to this centralized control are some desirable features developed jointly by Bendix engineers and the Communication Department of the ACL.

In this centralized radio control system, the Coast Line normally uses the conventional train dispatcher's telephone line circuit. A "first" for this Coast Line project is provision for a cut-over to a message line circuit if the dispatcher's telephone line fails.

The actual radio communication units in the way station installations represent the most complex portion of the equipment, and hence the portion most likely to cause an outage of the system. Consequently, the communications units have been installed in duplicate with appropriate changeover facilities which can be operated either by the telegraph operator on duty or by the dispatcher through remote control. For example, the dispatcher, by "dialing out" the standby code of a particular way station, can actuate the changeover feature, and automatically change radio units so that operation can be continued until maintenance personnel can visit the way station to check the equipment. This practice of providing standby radio at wayside stations is another "first" for the Coast Line.

The remote control of the way stations is accomplished by the physical wire lines of the dispatcher and message circuits because these existed and were available. Such control, however, can be accomplished over any communication medium capable of carrying voice frequency pulses, which includes not only physical wire circuits, but telephone carrier circuits and microwave links, with no change in the control equipment.

CABOOSE INCLUDES both conventional long-range radio and walkie-talkie set for use by trainmen.

FLAGMAN ON REAR OF PASSENGER TRAIN has portable radio, this practice being a "first" for the Coast Line.

ENGINEER USES RADIO to talk with his conductor, with other trains, wayside offices, or dispatcher.

Actual radio transmission and reception employs two channels. A frequency of 160.59 mc is assigned for end-to-end and train-to-train communication. Mobile equipment normally stays on this frequency. A second frequency of 160.29 mc is assigned for wayside-to-train communication. Wayside units normally stay on that frequency, and the mobile units change to 160.29 mc to call and talk to wayside stations. A wayside station or the dispatcher, to talk to a mobile unit, first calls the train on 160.59 mc to change to the wayside frequency of 160.29 mc.

THE MOST CRITICAL ISSUE (in piggyback) is whether there will be a definite railroad trend, based on experience, to all-rail or to coordinated rail-motor common carrier type of service," declared J. P. Newell.

GEORGE M. LEILICH, general superintendent of the Western Maryland, was elected president of the superintendents' association for the current year. Mr. Leilich has been active in association affairs since 1941.

"No More Dead Freight"

New thinking on old problems highlights annual meeting of superintendents' association—They're cost and service conscious

Let's get rid of the words 'dead freight'; there's just two kinds today, perishable and non-perishable."

This remark from the floor by a member of the American Association of Railroad Superintendents set the keynote for that group's meeting in Chicago on June 7-9. Holding their 59th annual session, members of the association spent three days discussing such workday problems as piggyback service, hidden costs, prior classification in local and interline service, the "triple casualty account," passenger service and data processing.

Registration at the meeting was a record-setting 440.

In addition to discussion of committee reports on six major subjects, the group this year heard addresses by J. P. Newell, vice-president, operations, of the Pennsylvania; C. H. Jones, vice-president and general manager of the Chicago South Shore & South Bend; and B. E. Wynne, controller of the Western Maryland.

PRR's "TrucTrains"

Speaking at the annual luncheon on June 8, Mr. Newell of the PRR discussed his road's experience with trailers-on-flat cars. The PRR operates its own trailers in piggyback service, and handles motor common carrier trailers as well. Both services have grown steadily, Mr. Newell said, and gross revenues in May were at an annual rate of $5.5 million. During that month the road handled 944 common carrier trailers and 1,220 trailers of its own.

"There are some honest differences of opinion regarding piggyback, so I am sure no harm will be done if I present our views on the Pennsylvania as to its future in transportation," Mr. Newell continued. "I do not think that anyone will disagree with the statement that there should be a coordinated rail-highway transportation system in this country if we are to progress and provide the kind of service to which our country is entitled, and which it has a right to expect."

Mr. Newell went on to "generalize" about the economies of the PRR's trailer-flat car service. He said the conventional freight car averages but 43.8 miles per day, and is on the move a little more than two and one-half hours.

"Contrast this with piggyback, where, in our present New York-Chicago service, the cars are making over 300 miles per day and we expect that, ultimately, with the shorter hauls included, the average will be over 200 miles per day. . . .

"Loss and damage likewise is an item of importance. In 1954 our average loss and damage payment per $100 of freight revenue was $1.68. Compare this with our experience to date, wherein our loss and damage on 5,993 trailers in our own service has averaged only about $0.30 per $100 of freight revenue, and for 2,436 trailers in our common carrier service, only about $0.025 cents per $100 of revenue. The saving in L&D alone is the equivalent of one and one-third points in the transportation ratio on the business moving in this service."

Breaking a Barrier

The PRR vice-president said that whatever form piggyback service ultimately takes, there is no doubt it is here to stay.

Turning to trucker-railroad relationships, Mr. Newell said his road's first obstacle in common carrier piggyback service was the "barrier" that has developed over

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THE ONLY 64 VDC POWER SUPPLY WITH DUAL VIBRATOR RELIABILITY FOR ALL MOTOROLAS IN DIESEL APPLICATIONS

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2-WAY RAILROAD RADIO

Motorola consistently supplies more mobile radio than all others—
Proof of acceptance, experience and quality.
The only COMPLETE radio communications service—specialized engineering . . . product . . . customer service . . . parts . . . installation . . . maintenance . . . finance . . . lease.
"The best costs you less—specify Motorola".

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ROGERS MAJESTIC ELECTRONICS LTD., TORONTO, CANADA

B. W. TYLER, JR., assistant to vice-president of the Pennsylvania at Pittsburgh, served as president of the superintendents' association for the past year.

the past 20 years. He said it has been a long hard pull to convince the truckers that "we are sincere in our desire to provide a new form of transportation which will be jointly beneficial to both of us."

To date, the Pennsylvania has invested a little over $5 million in equipment and spent $500,000 for terminals for its "TrucTrain" service, Mr. Newell added. Included in this are 420 75-ft flat cars and two major terminals. The road has, in addition, 288 highway trailers and 58 tractors in its own service.

"One field in which considerable expansion might be expected is piggyback movement between railroads," Mr. Newell said. "It is conceivable," he added, "that the expansion of this new service might be such that interline hauls will result in so much confusion over trailer ownerships that pooling of trailers or an overall agency will be the answer—an agency that will own and provide the trailer equipment, or at least distribute it, maintain proper records and avoid empty mileage. It might be a service similar to that provided for the shippers of perishable freight by refrigerator car lines."

The traditional "charge to the superintendents"—opening speech at the convention—was delivered by Mr. Jones of the South Shore. Reviewing today's competitive situation, Mr. Jones said the railroads must "get more business," and improve service in every way possible. He spoke of the growing use of business machines, the almost-completed trend to diesels and the widespread mechanization of maintenance of way work.

"But very little has yet been done in employee education," Mr. Jones declared. He pointed out that railroad work, by its very nature, permits many employees to work as individuals, with minimum supervision. "Only a man's conscience dictates how good a job he does under those conditions," he said.

The South Shore officer went on to point out that many employees are in frequent contact with the public and, as such, they "form public opinion of the railroads." He recommended that more attention be given to educating not only new employees but the existing work force as well. "The teaching of teamwork is a very fertile field," he declared.

"The place to start is with the supervisors," he added. Mr. Jones mentioned his own road's work in setting up a four-day management forum for supervisors in all departments. A good many "promotable employees" have also attended these forums, he said. Although the South Shore dropped this work in 1954 when traffic fell off, Mr. Jones indicated it may be resumed soon. If this is done the road probably will bring in a trained educator to set up the concentrated adult-education program.

Net Can Be Increased

The work of another railroad organization, the Railway Systems and Procedures Association, was described by Mr. Wynne of the Western Maryland. He said RSPA stoutly believes in attacking internal railroad problems with the inter-departmental approach; and the major aim of the organization is to help railroad managements realize maximum effectiveness—i.e., greatest possible net income.

Mr. Wynne quoted a recent statement by D. W. Brosnan, operating vice-president of the Southern, to point out one area that RSPA has explored in looking for ways to increase net. The place is empty car distribution; and Mr. Brosnan was quoted as saying:

"What is needed is to locate every empty at each station at a certain time of day—to be advised of its characteristics; that is, its *type*, whether flat, gondola, hopper or box, etc., its *size*, its ownership, and if a box car, the door size and arrangement. Then within a short time, say one hour, to be able to process all these data on available empties, and to develop by machine methods the best application of available cars on orders. This is a task . . . in which there is a real pot of gold at the end of the rainbow of its accomplishment."

Mr. Wynne went on to discuss possible ways of attaining Mr. Brosnan's goal—through such things as high-speed electronic computers and better communication-networks.

He also pointed to stumbling blocks. For example, he said, the present AAR Mechanical Division designation for a car is not sufficiently informative to enable railroad men to do a good job of car distribution because it doesn't tell enough about the car's characteristics. This will become increasingly true, he added, as more and more cars are equipped with various load-retaining devices and special equipment. He suggested that railroad officers from all affected departments should get together and agree on a common code, containing the needed information.

Officers elected for the coming year included Mr. Leilich as president; H. H. Clark, superintendent transportation, Erie, first vice-president; J. A. Craddock, superintendent, Delaware, Lackawanna & Western, second vice-president; M. B. Phipps, general manager, Nickel Plate, third vice-president; and E. O. Daughtrey, superintendent, St. Louis-San Francisco, fourth vice-president. D. E. Ferner, superintendent transportation of the CSS&SB, was re-elected treasurer.

The Kid Glove Treatment!

That's what both railroads and shippers call Evans DF* equipped cars. And with good reason . . . because box cars so equipped transport lading so well that damage in transit is virtually eliminated.

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Spring-mounted guard arm plungers eliminate normal running slack and provide vertical safety interlock.

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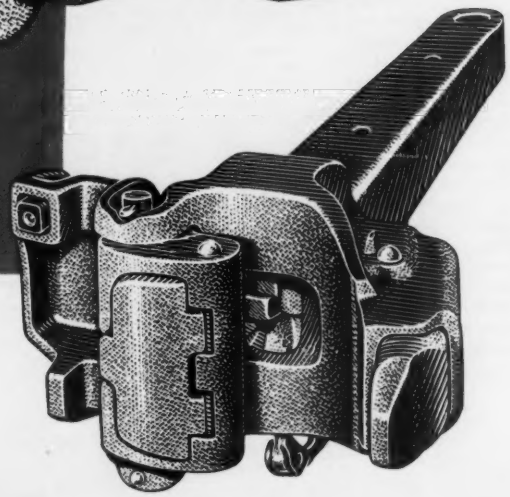

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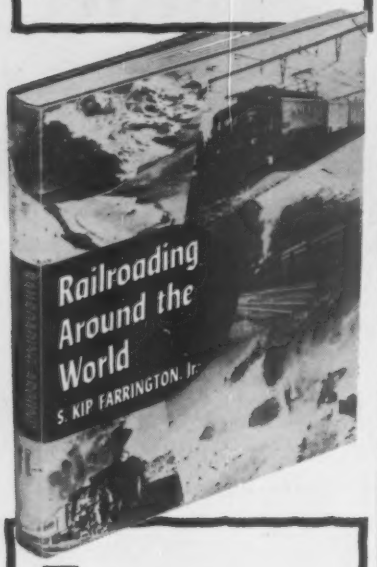

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Financial

(*Continued from page 15*)

discussion when he appeared and said the commission "did investigate" and it "found us absolutely clean." He said the ICC checked his and the Chesapeake & Ohio records, "and every member gave us a clear bill except the one member who was already employed by a law firm and connected with banking firms." He identified this commissioner as Mr. Knudson and said at another point that Mr. Knudson shouldn't have sat on the question.

Mr. White, asked about the commission voting, said he had heard that two members voted to investigate the situation and nine had voted not to investigate.

New York, New Haven & Hartford.—*Establishes Executive Committee.*—Ten members of the New Haven's board of directors have been elected to a newly-formed executive committee, with Harold R. Freeburne as chairman. Members of the committee, in addition to Mr. Freeburne and the road's president, Patrick B. McGinnis, are George Alpert, R. W. Freeburne, W. M. Goss, W. A. Graham, F. S. Levien, F. R. Murgatroyd, J. P. Rutherford, and J. E. Slater, who is also chairman of the board.

Reading.—*New Director.*—Frank C. LaGrange, partner in the brokerage firm of LaGrange & Co., has been elected a director, to succeed John M. Meyer, Jr.

Securities

New York Central.—*Stock Purchase Plan.*—The ICC has approved this road's application to issue, under terms of a stock purchase plan, 640,000 shares of no-par capital stock to be made available to employees and officers (*Railway Age*, February 14, page 46). Half the issue would be sold to employees through payroll deductions, with a minimum sale of five shares and a maximum of 200. The remaining 320,000 shares would be offered to key employees under purchase agreements enabling them to buy the stock in 100-share lots at any time in a 10-year period. Any employee who would purchase more than 200 shares (with a limit of 10% of the total shares available for purchase agreements) could do so with approval of the board of directors, the purchase price to be payable in full at the time of delivery of the stock. The commission approved a purchase agreement under which A. E. Perlman, Central president, may buy 2,3000 shares for $19.875 per share.

The ICC also approved an incentive bonus plan under which selected employees would be rewarded for extraordinary services with cash or capital stock, or both, up to an amount of $50,000. Funds to implement this plan would be set aside in an incentive fund. The stock would be purchased in the open market.

Applications

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—To issue $60,000,000 of 5% series A income debentures, due January 1, 2055, to be exchanged for 600,000 shares of outstanding $100-par series A preferred stock, on the basis of $100 of debentures for each share of stock. The company indicated in its application that this is the first step toward retiring its total of 1,118,652 shares of outstanding preferred stock through debenture issues, and that it will reduce the road's taxes by more than $1.5 million.

ERIE.—To assume liability for $3,270,000 of equipment trust certificates to finance in part purchase of the following box cars at an estimated total cost of $4,099,565:

	Description and Builder	Estimated Unit Cost
300	50-ton box cars (Greenville Steel Car Company)	$7,355
150	50-ton box cars with DF loaders (General American Transportation Corporation)	10,140
50	50-ton box cars (General American)	7,440

The certificates, to be dated July 15, would mature in 15 annual installments of $218,000 each, beginning July 15, 1956. They would be sold by competitive bidding, with interest rates to be determined by such bidding.

SOUTHERN PACIFIC.—To issue and sell $25,000,000 of 3⅞% debentures, maturing May 1, 1981, as part of a trust agreement with the Crocker First National Bank of San Francisco, in connection with a contributory retirement plan for salaried employees. Total amount needed to fund the plan, the road advised the ICC, is approximately $29,041,145. It plans to contribute $2,904,145 toward the fund annually from 1955 through 1966 to cover past service liability and to make annual payments of $803,000 each on current service. The trustee is to invest annually in the debentures one-half the amount paid into the fund by the road, or, approximately $1,850,000 annually through 1966 and $400,000 annually thereafter through 1973. Employees participating are to contribute 30% of their monthly basic salaries exceeding $350 with limitations fixing monthly contributions at $156 maximum and the maximum retirement pay at $37,500 per year.

Security Price Averages

	June 14	Prev. Week	Last Year
Average price of 20 representative railway stocks	98.91	97.78	66.37
Average price of 20 representative railway bonds	98.85	98.59	94.78

Dividends Declared

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—common, $1.50, payable out of accumulated earned surplus of prior years on July 26 to holders of record July 1.

EAST PENNSYLVANIA.—$1.50, semiannual, payable July 19 to holders of record July 1.

MASSAWIPPI VALLEY.—$3, semiannual, payable August 1 to holders of record July 1.

NORTH CAROLINA.—7% guaranteed, $3.50, semiannual, payable August 1 to holders of record July 21.

PHILADELPHIA & TRENTON.—$2.50, quarterly, payable July 11 to holders of record July 1.

PIEDMONT & NORTHERN.—$1, quarterly, payable July 20 to holders of record July 5.

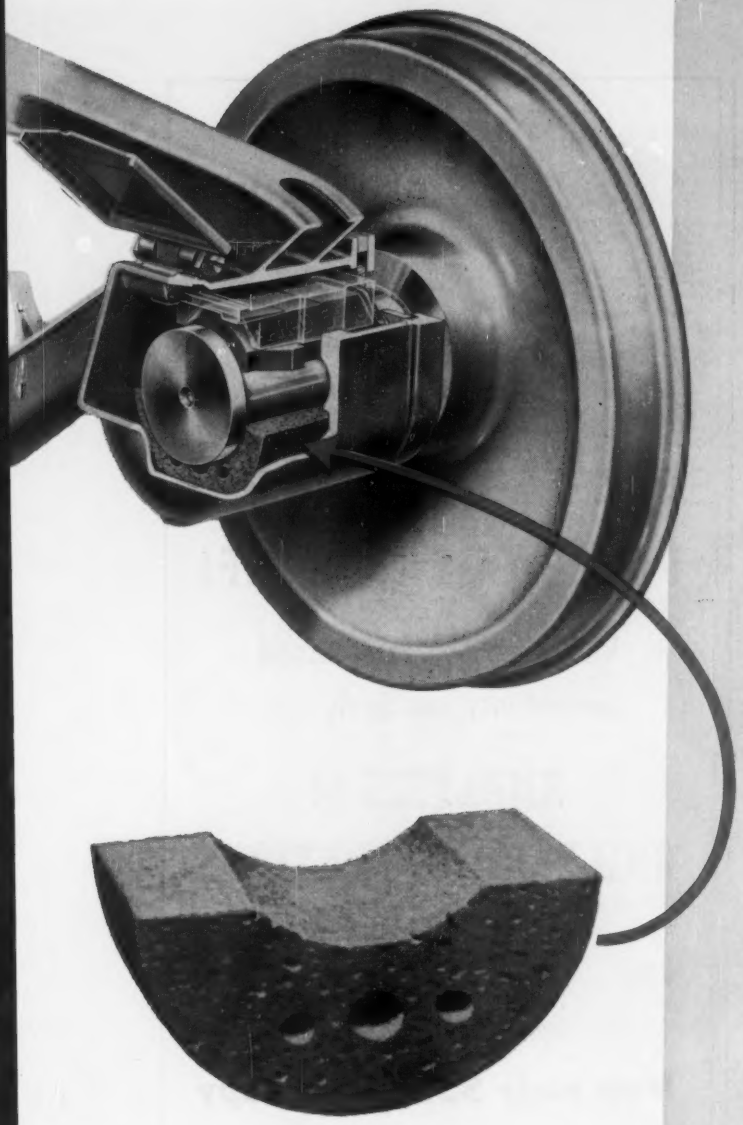
PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.—$2.50, semiannual, payable July 20 to holders of record July 8.

PROVIDENCE & WORCESTER.—$2.50 quarterly, payable July 1 to holders of record June 13.

ST. LOUIS-SAN FRANCISCO.—37½¢, payable September 15 to holders of record September 1.

STONY BROOK.—$2, semiannual, payable July 5 to holders of record June 30.

TEXAS & PACIFIC.—common, $1.25, quarterly; 5% preferred, $1.25, quarterly; both payable June 30 to holders of record June 23.



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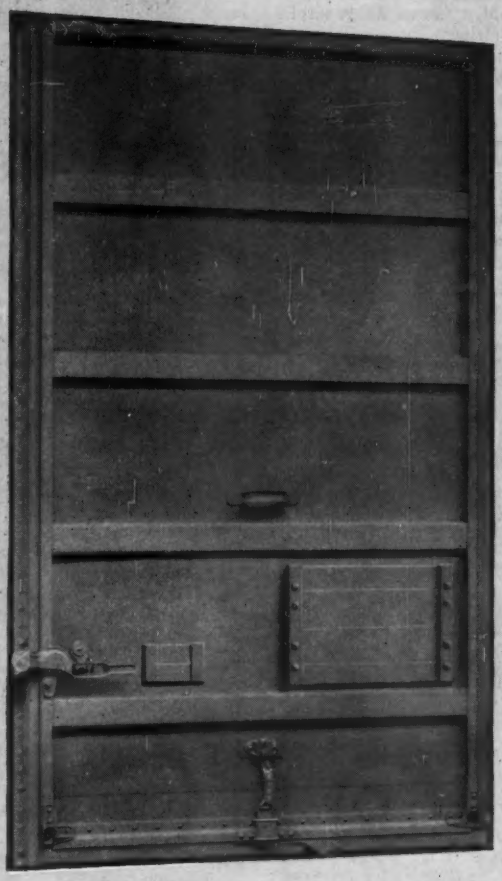

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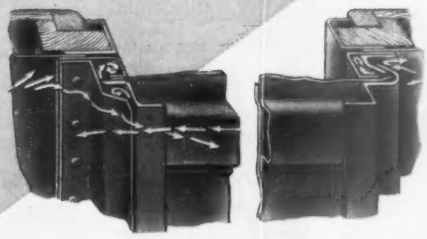

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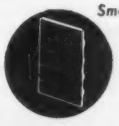

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S-7

Railway Officers

BALTIMORE & OHIO.—Frederick S. Baldinger, traveling freight agent at Dayton, Ohio, has been appointed district freight agent at Huntington, W.Va., succeeding **Lawrence W. Brown,** whose promotion to division freight agent at Cumberland, Md., was reported in *Railway Age* May 23.

CHESAPEAKE & OHIO.—G. C. Phillips, superintendent passenger transportation at Richmond, Va., has been appointed director of civil defense for the railroad.

N. P. Waldoch, assistant general freight agent at Milwaukee, has been appointed general freight agent there. **C. F. Forcell** has been named district freight agent at Toledo. **K. C. Hoffman** succeeds Mr. Forcell as general agent at New Orleans.

G. P. Gibbs, assistant general manager, Southern region, has been appointed general manager of power and car utilization for the system, with headquarters as before at Huntington, W. Va. **A. W. Gillette** has been appointed trainmaster at Grand Rapids, Mich., succeeding **E. C. Jesse,** promoted. **P. J. O'Connell** has been appointed trainmaster at Chicago Terminal, succeeding **E. W. Abel,** retired. **R. L. Lamb,** transportation inspector at Richmond, Va., has been appointed special engineer—operations there, succeeding **R. W. Vawter,** promoted.

C. E. Weaver, Jr., general auditor—traffic accounting at Cleveland, has been appointed general auditor—staff in the finance department at that point.

DETROIT, TOLEDO & IRONTON.—L. W. Klenk has been appointed general agent at Dearborn, Mich.

GREAT NORTHERN.—R. O. Senkbeil has been named acting superintendent dining cars at St. Paul, succeeding **C. G. Koenigs,** deceased.

GULF, COLORADO & SANTA FE.—G. R. Collier, division engineer at Temple, Tex., has been appointed district engineer at Galveston, succeeding **J. E. Eisemann,** transferred.

FRISCO.—J. K. Beshears, superintendent, River division, at Chaffee, Mo., has been appointed director of labor relations at St. Louis.

ALTON V. JOHNSTON, who recently was appointed chief engineer of the Canadian National. Because of a printer's error, the photograph accompanying previous announcement of Mr. Johnston's promotion (*Railway Age*, June 13, page 72), was not that of Mr. Johnston.

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keep another UNDER YOUR SEAT BOX — containing a 1½ KW generator, driven by a hydraulic motor. Generator speed and direction control mounted below the oil reservoir adjacent to the generator.

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W. S. Autrey, roadmaster at Temple, replaces Mr. Collier.

GULF, MOBILE & OHIO.—John J. McKnight, district freight agent at Detroit, retired April 30 after more than 53 years of railroad service, the last 33 of which were with the GM&O.

ILLINOIS CENTRAL.—Bernard J. Grenrood, general passenger agent at New Orleans, has been appointed passenger traffic manager at Chicago, effective June 16. **David J. Hearne,** general passenger agent at Chicago, has been appointed to the newly created position of assistant passenger traffic manager there. **Edward W. Smith,** chief clerk to passenger traffic manager at Chicago, has been named assistant general passenger agent at that point, succeeding **Herman J. Biesterfeldt,** who has been promoted to general passenger agent at Chicago. **Emmit L. Holmes,** assistant general passenger agent at Chicago, has been promoted to general passenger agent at New Orleans, succeeding Mr. Grenrood.

PENNSYLVANIA.—John D. Morris, general manager, Western region, at Chicago, has been appointed to the new position of general manager of transportation at Philadelphia. Mr. Morris, who, in his new assignment, reports to James P. Newell, vice-president—operation, will be assisted by a staff of experienced operating officers in coordinating system, inter-regional and, to some extent, inter-divisional freight services. **Arthur F. McSweeney,** assistant chief of freight

John D. Morris*

transportation—TrucTrain Service, has been named manager of freight train operation, assuming the duties of **Andrew F. McIntyre,** chief of freight transportation, who has been granted a leave of absence pending retirement. **Wendell C. Allen,** assistant chief of freight transportation—terminals, has been named to Mr. Morris' staff as manager of transportation engineering, to supervise development of improved methods and procedures, including new types of equipment, more efficient operations on the road and in terminals, and initiation of new types of service. **Howard A. Kohout,** superintendent of the Susquehanna division at Williamsport, Pa., has been appointed to succeed Mr. McSweeney as manager of TrucTrain service. **Thomas F. Schaekel,** superintendent car service, has been named manager of car service records, and **George Palk** has become manager diesel control bureau. **Jacob D. Fuchs,** general superintendent of transportation, Western region, at Chicago, has been appointed acting general manager of that region. **Claude D. Merrill,** assistant to general manager, Western region, at St. Louis, succeeds Mr. Kohout as acting superintendent of the Susquehanna division.

Milford C. Bitner, engineer maintenance of way, Western region, at Chicago, has been advanced to general superintendent methods and cost control, office of chief engineer, at Philadelphia.

Charles W. Mayer, assistant real estate agent at New York, has retired after 45 years of service.

*This photograph of Mr. Morris appeared on page 72 of the June 13 *Railway Age*, where, because of a printer's error, it was incorrectly identified as a photograph of Alton V. Johnston, of the Canadian National.

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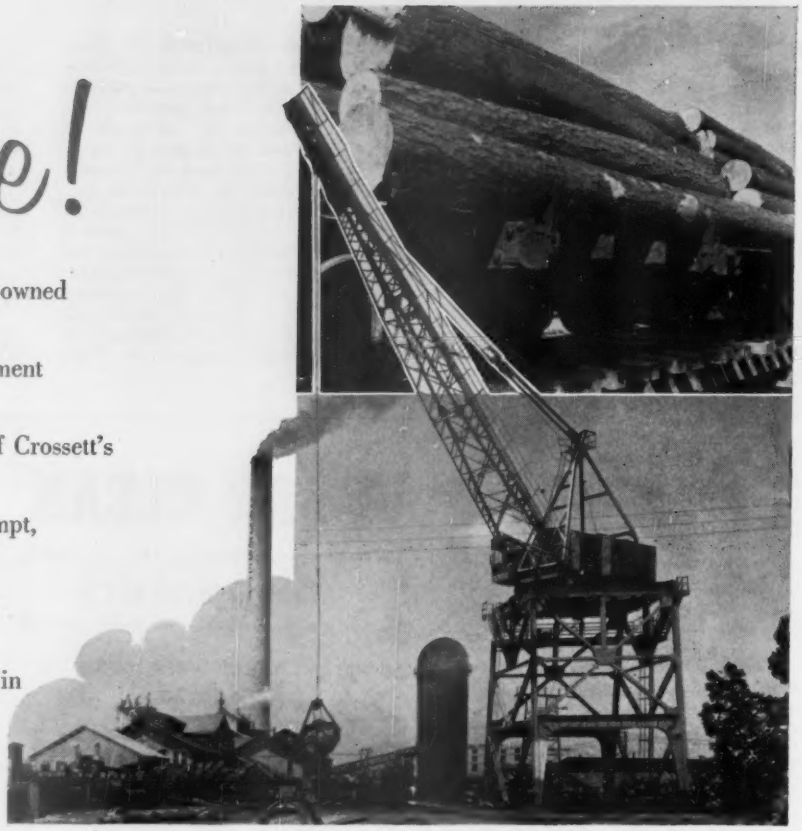

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